JOURNAL

OF THE

INDIAN MEDICAL ASSOCIATION

Vol. V *Calcutta: August, 1936* No. 11

OBSERVATIONS ON EPIDEMIC CEREBROSPINAL FEVER IN INDIA: INCIDENCE, DIAGNOSIS AND TREATMENT

PURSHOTAMDAS T. PATEL, M.D. (Lond.), M.R.C.P. (Lond.), D.T.M. & H. (Cantab.), F.C.P.S. (Bom.),
Medical Superintendent, City Fever Hospitals, Arthur Road and Maratha Tuberculosis Hospital, Hon. Physician, K. E. M. Hospital, Parel, Bombay.

Cerebrospinal fever or cerebrospinal meningitis is one of the four epidemic diseases of the central nervous system. It occurs both sporadically as well as in an epidemic form here. The causal organism, meningococcus or diplococcus intracellularis meningitides of Weichelbaum is found in the majority of cases. Cerebrospinal meninges are the final site of the organisms after an initial bacteriemia.

The first authentic cases were noted by Vandyke Carter in 1878 who recorded four cases in Bombay when he was working on Relapsing fever. Dimmock recognised the disease in epidemic form amongst the convicts of Shikarpur Jail during the cold season of 1883—84. Since 1881 cases have been reported in India from various jails, army barracks etc. The disease was made notifiable in 1912. In Bombay proper some cases were admitted into the City Fever Hospitals, Arthur Road in 1912. Upto 1921 cases were admitted and diagnosed only on clinical grounds. Since then diagnosis is established by thorough bacteriological examination of the cerebrospinal fluid. Since last year small epidemics have broken out in Ahmedabad, Delhi, Calcutta and many smaller towns.

The following table shows the records of the past 15 years:—

TABLE I.

Year	No. of Admissions.	Year	No. of Admissions.
1921 ...	123	1928 ...	3
1922 ...	85	1929 ...	1
1923 ...	46	1930 ...	2
1924 ...	20	1931 ...	9
1925 ...	18	1932 ...	6
1926 ...	9	1933 ...	2
1927 ...	5	1934 ...	52
1935 ...	183 (upto December 25th).		

ETIOLOGY

Age. No age is exempt from this disease, though the percentage of adults is always higher. Generally children between 6 and 10 are also seen in fairly large numbers.

The following table shows age incidence in cases treated at the City Fever Hospitals, Arthur Road during the last 1934—35 epidemic:—

TABLE II.

Age.	Males.	Females.	Total.
1—5	7	3	10
6—20	58	16	74
21—30	50	7	57
31—40	22	1	23
41—50	4	—	4
51—60	4	—	4
	145	27	172

Season.—Meningitis is essentially a disease of the winter autumn season, though any time there is a sudden change of weather as has been happening in this country leading to catarrhal symptoms, the disease preponderates.

Epidemic form.—It is reported that epidemics usually occur when there is concentration of individuals as in troops in war, jails. It will be seen from the following points that the spread of infection of this disease cannot be explained on the basis of most other infectious diseases as it differs considerably in several ways.

(1) The disease tends to remain localised in one particular district.

(2) The source of origin of the epidemic cannot be treated as the disease starts suddenly in some area when the remainder of the country is free and after two or three years suddenly stops.

(3) The disease is not highly infectious as it is seldom that a second case appears in the same house. In our series we had only one instance when three members of the same family were attacked one after another.

(4) The cases cannot be traced to have any relation as one case appears from a place with ideal surroundings.

(5) The disease is very rarely seen amongst those of the hospital staff, who handle the cases mostly.

Occupation.—Almost all classes are affected, but in hospital practice we see only poorer classes of Bhaiyas, Pathans etc., who are generally exposed to rigors of weather in their work.

Clinical Types

There are mainly three types:—

(1) *Fulminant Type.*—The spread of the infection is very rapid. The symptoms are extremely rapid and the patients succumb within 48 hours. The brain is covered with thick pus. The cerebrospinal fluid is very thick and streaks of pus so often prevent free flow of the fluid through lumbar and cistern punctures.

(2) *Ordinary Type.*—The symptoms are less marked and the fluid gradually becomes clear after repeated lumbar punctures and serum administrations.

(3) *Chronic Type.*—This is the type in which cases linger on. The fluid remains turbid inspite of treatment. The patient keeps on for as long as 2 to 6 months and then gradually succumbs due to hydrocephalus and malnutrition.

Diagnosis

In straight forward cases the disease presents very little difficulty in diagnosis specially when an epidemic is raging. If the main points are borne in mind diagnosis is established quickly. This is absolutely essential as the disease rapidly progresses to the meninges of the brain and then there is great difficulty in checking the disease. Two points should be borne in mind:—

(i) Whether the patient is suffering from meningitis.

(ii) Nature of the causal organism. This is the final test brought out by the bacteriological examination of the cerebrospinal fluid in conjunction with cytological and chemical examinations.

The main symptoms are general as in all types of meningitis. Sudden onset of fever with severe occipital headache accompanied by vomiting are the chief symptoms. There is also photophobia and optic changes as the case progresses, rapid pulse and respirations. Convulsions, delirium and unconsciousness supervene. Rigidity of the neck muscles and traction of the head with vomiting are the chief signs and symptoms of meningitis. One case was admitted with a history of mumps. She was found vomiting persistently. She never complained of pain in the neck and muscles or headache. On examination the neck was found to be rigid, a lumbar puncture was done and the fluid revealed the true nature of illness. Repeated punctures, serum administration and auto-blood injections cured the patient—thus no sign or symptom whatsoever should be neglected.

In all meningitis cases, Kernig's sign is of utmost

importance. It is due to the contracture of the hamstring muscles due to nerve irritability.

Blood examination shows definite leucocytosis. The final and the most important point in the diagnosis is the examination of the cerebrospinal fluid. This is obtained by lumbar puncture. The fluid drawn out is turbid and under pressure. Turbidity is an indication of meningitis, but the type is to be found out only by bacteriological examinations. Cells are enormously increased, polymorphs in type, there is increase in albumen and decrease in the sugar contents. Film prepared from the deposit and stained by Gram's method shows gram-negative kidney shaped diplococci both intra and extra cellular in fair number.

Cultural examination should be made. The usual media are blood agar, Lowenthal's media and ascitic agar media, the last yielding fairly good results.

The principal features to be borne in mind are ten:

1. Sudden onset.
2. Severe occipital headache.
3. Early vomiting.
4. Steady rise of temperature with rigors, which may be irregular.
5. Presence of pain in the neck and down the spine with hyperaesthesia.
6. Rigidity of the cervical muscles.
7. Retraction of the head, in infants the bulging of the anterior fontanelle.
8. Kernig's sign.
9. Brudzinski's sign.
10. The result of lumbar puncture.

TREATMENT

Preventive:—(1) Free ventilation with an ample cubic space for each individual should be provided. Overcrowding in sleeping quarters should be avoided specially in institutions and schools. (2) As far as possible the patients and suspicious cases should be isolated in a hospital or in special parts of a hospital. The contacts should be segregated. (3) When definite carriers are identified they are kept in isolation and treated till the nasopharynx is free from meningococci. (4) Ordinary cold, catarrh and sore-throat should be immediately attended to. Naso-pharynx should be kept clean by constant use of antiseptics such as hydrogen peroxide, borothymolin etc. if any case is suspected in the neighbourhood. (5) Children should not be allowed to be handled by persons who come in touch with cerebrospinal cases. (6) Meningococcal vaccine may be used for prophylaxis; Dose—2,000 millions per c.c. in doses of 0·5, 1·0 and 1·5 c.c. every week for 3 weeks.

General.—Careful nursing and plenty of fresh air is required. Hair should be cropped short and unconscious patients should be turned frequently from side to side to prevent hypostatic pneumonia. If possible, a water bed should be substituted to prevent bed sores.

Application of leeches (½ dozen) to the nape of the neck relieves spasm.

Diet.—Milk in acute type, but later on fruits, glucose and semi-solid substances may be given in subacute cases.

Medicines.—For high temperature the usual diaphoretic mixtures consisting of soda salicylas in 10 to 15 grs. doses. How far urotropine is useful it is not certain, but Helmitol is supposed to be better excreted in the cerebropsinal fluid and hence may serve as an antiseptic. Ung. hydrargyri or application of leeches to the neck relieves congestion. For restlessness and pain, bromides or aspirin off and on are necessary.

Serum Treatment.—As in diphtheria and tetanus serum is absolutely essential as is well evident from the cases treated with and without serum. The results are not very encouraging although if the cases are diagnosed early and proper treatment is carried out by repeated lumbar puncture and serum administration there is no doubt many cases would survive. One disadvantage is that the disease spreads very rapidly to the brain and the vital centres. In fulminant cases the postmortem has revealed thick pus in the crevices of the brain and covering the medulla oblongata which is very difficult to be washed off by lumbar or cistern punctures and saline lavage.

Lumbar puncture.—This is a very painful procedure and some sort of anaesthetic is required. Usually local anaesthesia with novocaine 2% solution is used. In rowdy cases paraldehyde in olive oil or saline (1 in 4) is given per rectum in doses of one dram per stone of bodyweight by drop method an hour and a half before the puncture.

This induces very good general anaesthesia of short duration without any bad effects. Only in some cases general anaesthetics are required in smaller quantities than used otherwise. The patient is turned on one side—head is raised a little on the pillow, thighs are flexed on the abdomen fully and the interspinous spaces are identified. Generally the space between the 3rd and the 4th lumbar vertebra is selected. If local anesthesia is to be used the skin is sterilised and the solution is first injected intradermally and then in the space proper the lumbar puncture needle is introduced. A watch should be kept on the pulse and respiration and things to combat shock *e.g.* adrenaline injection etc. are to be kept in readiness. The stilette is removed and the pressure estimated in terms of mm. of mercury. Normal pressure is 6 to 8 mm. of mercury. In meningitis cases the pressure goes even upto 60 to 70 mm. The fluid is allowed to drain off very slowly in a sterilised test tube for investigations and culture. One should not relieve the pressure all on a sudden. If the fluid is drained off with force there are chances of hernia of the medulla oblongata and sudden death. The pressure should be taken every time and it should not be allowed to fall below less than half. After that the serum to be injected should be filled in a glass tube with rubber tube and connections part to be attached directly to the lumbar puncture needle. It should be injected by gravity only and never by a syringe as sudden increase in pressure causes shock. The foot of the bed should be raised about 9" so that the serum reaches the brain.

Lumbar puncture and serum administration should be continued every day for at least 3 to 4 days till the fluid is clear and meningococci are not found and then every alternate day or twice a week as the symptoms abate. Repeated examination of the fluid drawn out should be done and serum injected till organisms are found. Relapses are very common and hence treatment should not be stopped till the convalescence has lasted a week because a relapse is always very trying to treat.

Cistern puncture.—Where lumbar puncture fails sometimes due to spinal blockage—cistern puncture is to be performed. The neck is shaved and the head fixed on the chest (The patient is kept on one side). The shoulders are pressed down and the interspinous spaces defined. The occipital protuberance is identified and the finger passed downwards in the midline. The spinous process which is first felt below the prominence is of the 2nd vertebra. Fixing the thumb on it a small lumbar puncture needle with a 2 c.c. syringe is introduced immediately above the thumb entering the space between the 1st and the 2nd vertebra in the midline and along the plane of external auditory meatus and glabella. The needle is allowed to go in for about 4 cms. and the piston of the syringe is drawn out to see if the needle is in the cavity. This method should never be tried unless one has gained experience on cadavers as all the vital centres are liable to be damaged with very little erring. The fluid is withdrawn as in lumbar puncture and the serum injected.

In children under 1½ years ventricular puncture is performed through the fontanelle with caution.

Serum should also be injected intramuscularly and intravenously to combat toxins circulating in the blood. Recently Messrs. Parke Davis and Co. have introduced another kind of serum which is called anti-toxic meningococcal serum, that is, it possesses antibodies for toxins produced by meningococci. It is given intrathecally as well as intravenously, much better the latter procedure as the toxins circulating in the blood are to be neutralised. It had been tried in 10 cases with the result that the fluid cleared up very quickly. The average dose is 60,000 units. Out of 10 cases 8 recovered.

Besides serum treatment, vaccine is injected in doses of 100 to 200 millions per c.c. This has got one effect, that is, it increases the flow of the cerebrospinal fluid thus acting as a lavage.

There were three types of sera used in the City Fever Hospitals, Arthur Road, since 1929.

(1) Lister Institute's concentrated serum. This was supplied in 5 c.c. ampoules which was equivalent to 15 c.c. It had one advantage that it could be injected in smaller quantities with greater effects.

(2) Behring's serum—supplied in 10c.c. and 20 c.c. bulbs.

(3) Serum of Bengal Chemical and Pharmaceutical Works, Ltd. This is prepared from standardised strains and other strains of known high antigenic potency collected from different parts of India.

It is much more efficacious than the foreign ones.

Typing of the meningococci and preparation of separate serum for each type is not possible when one deals with an epidemic and acute cases.

Serum	Total Cases	Death within 48 hours.	Total Deaths	Mortality on the whole	Mortality excluding deaths within 48 hours.
Lister's	19	3	18	95%	93%
Behring's	48	18	39	81%	70%
Bengal Chemical's	173	60	109	62%	44%
Parke Davis & Co.'s	10	—	2	20%	20%

Recently it has been found that injection of auto-blood has helped a great deal in combating the toxins in the cerebrospinal fluid.

65 cases were given this treatment over and above the cistern puncture and intrathecal administration of serum. 10 c.c. of blood is withdrawn from the vein and the same reinjected intramuscularly in the gluteal muscles immediately after the serum is injected intrathecally. The fluid clears up in a very short time, the toxic symptoms get lessened and the patient feels much comfort. Of the 65 cases who were given this treatment 9 have recovered completely and 3 died within 48 hours. The other 3 who died were late cases.

Practical experience shows that if repeated lumbar punctures fail, one must do cistern puncture to relieve pressure even if no serum is to be administered, as there might be a blockage. Several of our cases were relieved of the pressure symptoms by this method.

REFERENCES

1. PATEL, P. T.—*Lancet*, September, 1926.
2. PATEL, P. T.—Infectious Diseases & Other Fevers in India, Butterworth & Co. (1929).
3. SEN, A. K. AND HAZRA, A. K.—*The J. I. M. A.* Vol. IV, No. 2, 1934.
4. KENNEDY, J. M.—*B. M. J.*, 13-4-1935, 756.
5. Reports of the Public Health Dept., Bombay Municipality, 1921-34.

THE RELATION BETWEEN THE COMPOSITION OF THE DIET AND THE URINARY EXCRETION OF ASCORBIC ACID

RAMKANTA CHAKRABARTY And AMRITA NATH ROY
From the Department of Biochemistry and Nutrition, Indian Institute for Medical Research, Calcutta

This investigation was undertaken with a view to find the relation, if any, between the ingestion of high carbohydrate, high protein and high fat diets and the urinary excretion of ascorbic acid. It was considered that this might throw some light on the function of vitamin C in relation to metabolism and on the need of vitamin C by different communities habitually living on different diets. Meat (mutton) and casein were used as two different sources of protein and butter was used as the source of fat.

The Tillman's method of estimating ascorbic acid by titration against 2·6 dichlorophenol indophenol as developed by Harris and Ray was employed. The evaluation of ascorbic acid in urine by this method is based on the assumption that the reducing substance in urine consists solely of ascorbic acid—an assumption which is supported by the evidence of other workers. In all cases twenty-four hours' urine was examined. The urine was titrated immediately after excretion, whenever possible, but the urine voided at night and in the following morning was preserved by adding sufficient glacial acetic acid to the urine so that the strength of the solution was approximately 10 per cent.

The subjects of the experiments were two healthy Bengali young men. They started the experiment by taking usual high carbohydrate Bengali diet consisting of boiled rice, dal (boiled aqueous decoction of pulses), fish and vegetable curry.

The ascorbic acid content of the urine collected over 24 hours was estimated for four days. The experimental subjects were then placed on a high protein diet for seven days, in which meat replaced an approximately equal quantity of rice, the proportion of meat being gradually raised from 115 G. on the first two days to 461 G. on the 7th day. The daily urinary excretion of ascorbic acid was estimated on this diet. The subjects were then put on the usual high carbohydrate Bengali diet for days, by which time the urinary output of ascorbic acid decreased. The subjects were then placed on a high fat diet for six days, in which butter fat replaced approximately an equal quantity of rice. The proportion of fat was raised from 58 G. on the first day to 230 G. on the 5th and 6th days and the daily excretion of ascorbic acid was noted. The subjects were then placed again on the ordinary Bengali high carbohydrate diet for seven days to allow the urinary output of ascorbic acid to fall. The subjects were then fed on a high protein diet for five days, in which casein replaced an approximately equal quantity of rice, the proportion of casein being increased gradually from 115 G. on the first day to 403 G. on the 5th day and the daily output of ascorbic acid in urine was estimated. It has to be mentioned that during the whole course of the experiment, cooked food was taken and fresh fruits were scrupulously avoided so that the results might not be complicated by the consumption of unknown quantities of ascorbic acid.

It was observed that in one case the average daily urinary output of ascorbic acid 9·54 mg., on the usual Bengali high carbohydrate diet rose to 12·07 mg. on the meat diet, an increase of 26·5 per cent. It fell to 10·21 mg. on the subject being placed again on the usual high carbohydrate diet, but rose again to 14·09 mg. on the high fat diet, an increase of 38·0 per cent. On the resumption of ordinary diet, it fell to 9·57 mg., which rose again to 14·65 mg. on the subject being placed on a casein diet, an increase of 53·1 per cent.

In another case the usual high carbohydrate diet gave an ascorbic acid value of 9·75 mg., which rose to 11·08 mg. on meat diet, an increase of 13·64 per cent. A period of the usual high carbohydrate diet brought the level down to 8·51 mg., which rose again to 14·80 mg. on a high fat diet, an increase of 74·0 per cent. On being diverted to the usual high carbohydrate diet, the level fell to 10·46 mg., which rose again to 13·12 mg. on the casein diet. an increases of 25·4 per cent.

It appears from these results that there is a considerable increase in the urinary excretion of ascorbic acid in both cases on a high fat diet as well as on two high protein diets, one containing casein and the other meat. It is not improbable that the higher figures for the urinary excretion of ascorbic acid in England, as given by Harris and Ray (1935), are due to the greater consumption of meat in that country. The relatively lower figures obtained by us do not necessarily indicate vitamin C subnutrition, as in some unpublished experiments we have found that a sharp peak is produced in the urinary excretion of ascorbic acid on the ingestion of extra vitamin C (*compare* Harris and Ray, 1935).

The nature of the chemical events, which underlie the increased excretion of ascorbic acid in urine on high fat and high protein diet is under investigation. It appears possible that ascorbic acid has some special role in the metabolism of fat and protein.

TUBERCULOSIS — A DISEASE OF THE FAMILY

DR. H. G. D. MATHUR, B.Sc., M.B., B.S., D.T.M. & H., M.R.C.P.E., DR. P.H.,
Professor of State Medicine, K. G. Medical College, Lucknow University.

In the last century patients were usually treated symptomatically *i.e.*, all the symptoms complained of or the signs elicited were studied and in the prescription that was drawn up some drug or the other was included for each of the symptoms. The result was that a large number of drugs were included in a prescription and the efficiency of a doctor was judged both in the lay and the professional circles by the lengths of his prescriptions and the skill displayed in their "blending". As often as not the chief cause of the trouble remained undiscovered and untreated. Times have changed and now-a-days even an internist would not feel satisfied unless he has been able to visualise the pathological condition causing the symptom-complex and a physician would concentrate all his efforts towards helping nature to overcome the basic lesion. Only the very troublesome symptom may be selected for immediate relief by palliatives, the others are expected to be overcome by the system itself once the handicap of the basic cause has been removed. I would venture to suggest that even the physician who prescribes the most up-to-date lines of treatment and regimen for a case of tuberculosis should at best be considered from the point of view of society as following the nineteenth century methods of symptomatic treatment unless he is prepared to consider and do something for the socio-economic conditions of the family which entirely are the basic causes of the trouble. Tuberculosis in an individual should be treated as a symptom-complex produced through the family unit suffering from a socio-economic maladjustment and any line of treatment adopted for the individual unless it takes into consideration this maladjustment and its contributory factor cannot possibly relieve the situation but would on the other hand tend to aggravate it.

Epidemiologists and pathologists are agreed that except in the very primitive communities infection by tubercle bacillus occurs fairly early in life, hence it can be taken for granted that in a "civilized" community, whether an individual develops tuberculosis or not depends not so much on the presence of infection but on the presence or absence of the various predisposing and contributory causes and it will be shown that the socio-economic condition of the family is the determining factor.

Even the-early-infancy-infection is usually the result of the unfavourable economic conditions necessitating living in congested and consequently insanitary quarters with overcrowding in the family itself and hence more intimate contact with a possible tubercular person. At this stage malnutrition may also cause an under-nourished and ill-developed system which later on may prove a physical handicap to a healthy development.

The infection if not massive tends to lie dormant and develops into disease when the stress and strain of life do not only lower the individual resistance but the indifferent economic condition, the cause of this stress and strain, also in itself leads to inadequate supply of suitable food, comforts and recreation so very necessary for mitigating, to some extent, the worldly struggle.

The brunt of the attack of tuberculosis falls on the bread-winner or the house-wife, in the former case the family income is decreased or cut off at the source and in the latter, the income remaining uneffected the expenses are increased through absence of control over them through inefficient housekeeping.

The long drawn out course of the disease with the will-o'-the-wisp of recovery ever present but ever elusive leads almost invariably to incurring of expenditure much beyond what the family can really afford. Sanatoria trying to catch the fleeting optimal climate for a cure and perched on rather inaccessible hill-tops hundreds of miles away from the house of the people in the plains, hold out the only ray of hope and, in availing himself of it, many a tubercular

person has drawn lavishly year after year on the rather attenuated and depleted family resources.

When a person who is lucky after all returns home as a "disease-arrested" case—the best that can be expected in a large majority—he finds the family financially bankrupt and himself not in the best of conditions to face the struggle for earning livelihood again. The result is that very often he again develops acute symptoms soon to fall a prey to the disease. Thus it will be seen that economic questions affecting the family are very intimately connected with the causation, progress and relapse of tuberculosis.

It is, therefore, not sufficient to have secured "arrest of disease" in the cases of tuberculosis that may come to your notice. Please stop and think how far you can ameliorate the economic condition of the family unit and the measure of your success in the control of the ravages of tuberculosis in a community will be not the results you obtain as far as the patients themselves are concerned but the rehabilitation that you have been able to secure as far as the families are concerned. If you have not attended to the latter feature no matter what attention you have paid to the latest developments in the treatment, you should consider yourself as a practitioner of the nineteenth century, trying out the symptomatic treatment blissfully ignorant of the causes that determine the symptoms.

POSSIBILITIES OF SERUM TREATMENT IN SMALL POX

SANTOSH KUMAR DE, B.Sc., M.B.,

Superintendent, Infectious Hospital, Corporation of Calcutta.

It is rather unfortunate that the possibilities of treating small pox effectively with serum have not been explored in the way as they should have been, with the result that we are still without any potent remedy of this fell disease. In the hands of past workers including Kinyoun[1] (1894), Landmann[2] (1894), MacElliot[3] (1895) and Beclere[4] (1896) the results of serum treatment were far from satisfactory. And, in spite of the fact that Thomson and Brownlee's[5] (1903) efforts in this direction were somewhat successful, the belief gradually gained ground that it was more or less useless to try serum in cases of variola. Nakamura[6] (1928) was, however, able to revive interest in the subject, and was followed by Ledingham[7] and his associates (1931) whose experiments with immune horse serum as a prophylactic agent attracted a good deal of attention. The therapeutic value of the serum, however, could not be placed beyond dispute as the experiments of the latter workers did not embrace the curative side of the problem.

In the year 1925 we[8] began our investigations with a comparative study of the behaviour of the blood of the immune and of the non-immune towards vaccine lymph. The method adopted for this purpose was a simple one, and is described below:—

Action of the Blood of the Immune on Vaccine Lymph

A fresh vaccine lymph tube is broken at both ends, and an unprotected child is vaccinated with a few drops of the lymph in the usual way at one place of the arm. Then a finger of the immune person (convalescent small pox patient) is pricked with a sharp needle after taking the usual antiseptic precautions. The drop of blood that comes out, is then sucked in through one of the broken ends of the tube by closing the other end with the undersurface of the finger of the operator. The tube is then rolled between the fingers to allow the blood to be thoroughly mixed with the lymph. Then the

child is vaccinated at a second place, a little away from the first, with this mixed lymph. The subsequent results of the vaccination at the two spots are noted.

27 children were vaccinated in this way, and the results were:—

A. In the case of 22, successful reactions were obtained with pure lymph and no reaction with mixed lymph (*i.e.*, lymph and blood of the immune).

B. In the case of 4, positive reactions were evidenced both with pure and mixed lymph.

C. In one case, negative results were obtained both with pure and mixed lymph.

The cases of 'A' conclusively prove that the blood of the immune possesses the power to destroy or neutralise the potency of an active lymph,

The results in 'B' at first seem puzzling. But if it is assumed that the lymph was either not properly mixed with the blood of the immune or that the blood was not adequate in quantity to contain sufficient anti-bodies to render the lymph inactive, the nature of the reactions is easily explained.

In the case of 'C' an inactive lymph was evidently used.

Action of the Fresh Blood of the Unprotected *i.e.* Non-Immune on Vaccine Lymph

A second series of parallel experiments were undertaken to see if the blood of the non-immune had the same inhibitory action on the vaccine lymph as the blood of the immune. The blood of children on whom primary vaccination had not been done, was used for the purpose of mixing with potent vaccine lymph, and vaccinations were performed on five unprotected children at two different spots, as in the previous series of experiments, with

1. Pure lymph
2. The same lymph mixed with the blood of the non-immune.

The results were positive in each case showing thereby that unlike the immune, the non-immune lack those specific substances in the blood, which are capable of destroying or neutralising the virus of the vaccine lymph.

The next step in the course of this investigation was to find out if the blood of the convalescent which can render inert the potency of the vaccine lymph so successfully, can be utilised in treating Small Pox patients. Anche[9] (1893) and Landmann[2] (1894) who had tried this method of treatment, found that the serum had no noticeable effect on the development of the disease. Tessier and Marie[10] (1910), on the other hand, reported 8 recoveries out of 13 severe cases of variola treated with the serum of convalescents. Of the six cases treated by us[11] with the whole blood of convalescents by intramuscular injections, there were 4 recoveries. The total amount of blood injected in the "cures" was:—

The total amount of blood injected in the cases which ended fatally was:—

1st case ... 85 c.c. (Adult).
2nd case ... 20 c.c. (Child — 1 month 2 days).
3rd case ... 25 c.c. (Child — 1½ years).
4th case ... 45 c.c. (Child — 2 years 2 months).

The total amount of blood injected in the cases which ended fatally was:—

1st case ... 30 c.c. (Adult).
2nd case ... 20 c.c. (Adult).

Reviewing the results of blood treatment in the cases mentioned above, the following outstanding facts claim consideration:—

1. Out of a total number of six cases, four recovered.
2. In these four only, sufficient doses of blood were injected.
3. Three of these four were of the confluent type.
4. In three out of the four, the course was definitely shortened.
5. In one of these four (unvaccinated child — 1 month 2 days), where blood was administered before the eruptions broke out, the disease was extremely modified.
6. In one, blood injection was able to successfully cope with a very bad and complicated type of case.

It is noteworthy also, that the patients, who died, received a much smaller quantity of blood.

In fact, if the doses of blood injections are calculated on the basis of the bodyweight, they fall far short of the quantities given in the cases of children. It appears that the serum, to be of any use, requires to be administered in big doses. Administration of inadequate quantities of serum might have been one of the causes of failures in cases reported by the earlier workers.

The foregoing results justified the focussing of attention on the animal world for obtaining serum for the effective treatment of variola. Through the courtesy and kindness of Dr. T. N. Majumdar, Ex-Health Officer, permission was obtained to carry on further research work in the Calcutta Corporation Vaccine Depot. A number of young, healthy, country-bred cow-calves, ages ranging from 10 months to 1½ years, was inoculated with purified vaccinia virus on the shaved thighs and abdomen under strictly aseptic conditions by the open method by massive intracutaneous inoculation. Between the 10th and 14th day after inoculation, blood was drawn from only those animals which had yielded more than 400 grs. of pulp after 120 hours. of the operation. The serum was subsequently separated, and used for further experiments. It was decided to employ the serum of immunised animals, thus obtained, both for prophylactic and therapeutic purposes with regard to vaccinia. The experiments were undertaken in the beginning of February, 1935, and continued till about the middle of March, 1935. Vaccination with purified vaccinia virus was performed on non-immune calves, and the serum of immunised calves was injected into them before the operation, and also after it—before the eruptions had come out, and also after they had appeared. In studying the results of serum treatment, reliance was not put merely on the changes noticed in the eruptions, but a novel method was thought of to have an idea of the drying-up process in the experimental animals. The usual practice is to collect the pulp from calves after 120 hours of vaccination. The quantity of pulp collected was taken as the measure of the success or otherwise of the serum treatment.

Serum of Immunised Calves as a Prophylactic Agent

Four healthy, country-bred cow-calves, very similar in height and weight, about 12 months old, were selected. Calf No. 1 was administered intramuscularly 60 c.c. of the serum two days prior to vaccination, and calf No. 2 received 120 c.c. of the serum one day after vaccination. Calves Nos. 3 & 4 served as controls. All the four calves were vaccinated with the same vaccinia virus under strictly similar conditions. In every case, the abdomen received 48 scratches, and the thighs 28—each about 4″ long and about 1″ apart. The pulp was collected after 120 hours and weighed. The results are given below:—

Calf No. 1: The collection of pulp was not attempted as there were only four vesicles, very small in size.

Calf no. 2: The pulp could not be collected as not a single eruption appeared during the 120 hours following vaccination.

Calf No. 3: 470 grs. of pulp were collected.

Calf No. 4: 520 grs. of pulp were collected.

The above results demonstrate that the serum abort vaccinia completely, if administered before the eruptions come out.

Serum of Immunised Calves as a Therapeutic Agent

The following experiments were intended to test the efficacy of the serum in the papular and vesicular stages of vaccinia. Two animals were experimented upon in each stage of the disease with varying doses of the serum, while two other animals served as controls.

Papular Stage:

Calves No. 5 & 6,—country-bred, healthy cow-calves, about 10 months old, very similar in height and weight—were selected for testing the therapeutic value of the serum. Both of them were vaccinated under strictly similar conditions with a potent lymph from the same source. In each case, the abdomen received 50 scratches and the thighs 27—each about 4″ long and 1″ apart. On the 3rd day after vaccination, papules appeared at the site of the scratches, and a few of them were changing into vesicles. 90 c.c. of the serum was administered intramuscularly into the outer aspect of the thigh of Calf No. 5 while Calf No. 6 served as the control.

On the day following, some of the vesicles in Calf No. 5 were seen to be drying up, but in No. 6 all the vesicles were maturing. Another 90 c.c. of the serum was administered intramuscularly to calf No. 5. The pulp as usual, was collected after 120 hours and weighed. The results are given below:—

Calf No. 5: 240 grs. of pulp were collected.
Calf No. 6: 500 grs. of pulp were collected

In order to see if lesser quantities of the serum could produce similar effects, Calves Nos. 7 & 8 were chosen. Both of them were young, healthy and about similar in height and weight. Calf No. 7 was the animal experimented upon, while Calf No. 8 was watched as the control animal. After vaccination with the same lymph under similar conditions with equal number of scratches, when the papules had begun to appear, Calf No. 7 was given 50 c.c. of the serum intramuscularly, and it was followed up the next day with another 50 c.c. as against a total quantity of 180 c.c. in the previous experiment. The pulp was collected after 120 hours, and weighed. The results are noted below:—

Calf No. 7: Pulp collected — 150 grs.
Calf No. 8: Pulp collected — 330 grs.

From the results it would appear that the serum had a marked modifying influence on the formation of pustules from papules, and even 100 c.c. of the serum had initiated the drying-up process in a remarkable degree.

Vesicular Stage:

The next series of experiments were undertaken to find out whether the serum could be of any value when the eruptions had just reached the vesicular stage.

Calf No. 9—a young healthy, cow-calf, about 1½ years old received the injections, while calf No. 10 of almost equal age, height and weight served as the control. The vaccination was performed with equal number of scratches with the same lymph and under identical conditions. When the vesicles had developed, 60 c.c. of the serum was administered intramuscularly to Calf No. 9, which was followed up by another 60 c.c. on the next day. The pulp was collected after 120 hours and weighed. The results are noted below:—

Calf No. 9: Pulp collected — 210 grs.
Calf No. 10: Pulp collected — 480 grs.

In order to determine if larger quantities of serum, employed in the vesicular stage, could quicken up the process of absorption in a more pronounced way, similar experiments were conducted, and the total quantity of serum administered by the intramuscular route was 180 c.c. in two injections on two successive days against 120 c.c. in the previous experiment. Calf No. 11 received the serum, and Calf No. 12 was the control. The pulp was collected after 120 hours and weighed. The results are:—

Calf No. 11: Pulp collected — 150 grs.
Calf No. 12: Pulp collected — 500 grs.

The results speak for themselves, the drying-up process quickened—so much so, that the quantity of pulp was less then one-third of that of the control animal.

These experiments left little room for doubt as to the efficacy of the serum of immunised animals in controlling the various stages of vaccinia. There were other problems, however, which demanded investigation in order to obtain a serum of high anti-vaccinial properties. And, these were:—

1. How many days after inoculation the serum should be collected?
2. Can the serum of any and every inoculated calf, irrespective of the reaction shown by the animal which can be easily measured by the amount of pulp collected from it, be used effectively to combat vaccinia, and incidentally variola?

The serum, used in the above experiments, was all collected from calves between the 10th and 14th day after their massive inoculation with purified vaccinia virus, and it was from those only that had yielded more than 400 grs. of pulp. Effective though it was, it remained to be seen whether the anti-body formation was not complete earlier, and the serum obtained from an animal immediately after the collection of pulp, would not prove to be equally good. Hence, it was decided to collect serum between the 6th and 7th day after massive inoculation, and try it on vaccinated animals when the papules or vesicles were just appearing.

Papular Stage:

Calf No. 13—was selected for the purpose, and when as a result of vaccination the papules were just

appearing, 90 c.c. of the latter serum (i.e. serum collected between the 6th and 7th day) was administered by the intramuscular route, with a second dose of 90 c.c. on the following day (i.e., the same dose that was used in case of the former serum in Calf No. 5). The pulp, when collected after 120 hrs., weighed 340 grs. as against 240 grs. and 150 grs., collected from Calves Nos. 5 and 7 respectively, in the previous experiments, showing thereby that the serum was weaker in anti-bodies than the one collected between the 10th and 14th day after inoculation.

Vesicular Stage:

Calf No. 14—received likewise 190 c.c. of the weak serum in two doses on two successive days when the eruptions, due to vaccination, were in the vesicular stage. The quantity of pulp collected was 450 grs. as against 210 grs. and 150 grs. obtained from Calves Nos. 9 and 11 respectively, in the previous experiments, and this fact was enough to prove that the serum should never be collected earlier than the 10th day after massive inoculation. It may be mentioned here that the doses of the former serum administered in the vesicular stage were 120 c.c. for calf No. 9 and 180 c.c. for calf No. 11 *i.e.*, less than the dose used here.

The foregoing experiments were with regard to the serum collected within a fortnight after massive inoculation. With the kind approval of Dr. L. M. Biswas, Health Officer, Corporation of Calcutta, further researches are being done to throw light on the quality of the serum if collected 2 weeks after inoculation from immunised animals that had yielded less than 300 grs. of pulp, and the possibility of getting it in a concentrated form. Evidently, careful studies are needed to select the right type of immunised animals, to determine the proper time for the collection of the serum, and also to work out the effective dose which would produce the maximum effect with the minimum quantity.

The experimental results had so far been convincing. But the goal was yet to be reached. Could this serum, with fairly strong anti-vaccinial properties, be used to combat effectively small pox in human subjects?

In this connection, the experiments of Hidetake Yaoi[12] may be referred to. They relate to the successful treatment of experimentally produced small pox in rabbits and monkeys with an active anti-vaccinial serum which was obtained from goats by injecting the purified vaccinia virus in successively increasing doses by the subcutaneous route. But, without a comparative study it is impossible to say whether the serum obtained by this method is superior in potency to the one obtained in accordance with our method, specially when it is remembered that the dose employed by Hidetake in monkeys, weighing about 2,500 to 3,000 gms., was as much as 30 to 35 c.c. After all, so long as human victims are not successfully treated, these experiments can only be of academic interest.

The present epidemic gave us an opportunity of trying the efficacy of the serum treatment in small pox patients. Nineteen cases have been treated so far, including one of the haemorrhagic type. The rest was of the confluent variety in different stages of the disease. The response to this form of treatment has, indeed, been remarkable in every way. The notes of the following cases have been picked up at random to demonstrate how successfully the disease can be combated in all its stages by the administration of the serum of immunised calves:—

CASE I. (Serum Therapy in Macular Stage)

Patient M. Hindu, Male, 23 years.
Vaccination—Primary only, in infancy.

Two cases of confluent small pox in the house where he lived, of which one had ended fatally, the other one in the stage of desiccation.

27-3-35.

Day of illness—4th day.
Stage—Macules on the face and wrists.
Temp.—Has come down from 104°·2 to 100°·6.
Respiratory, Circulatory and Alimentary Systems—Negative.

30 c.c. of serum injected intramuscularly.

28-3-35.

Temp.—99°·8.
Stage—Macules have changed into papules. Face and extremities more affected than the trunk.

30 c.c. of serum injected intramuscularly.

29-3-35.
Temp.—99°·4.
Stage—Papules are changing into vesicles, though the majority of them are drying up.

30-3-35.
Temp. 99°·4.
Stage—Most of the eruptions have dried up; a few vesicles only remain.

31-3-35.
Temp.—100°.
Stage—Umbilication in the remaining vesicles noticed.

1-4-35 to 5-4.35.
Temp.—98°.
Eruptions—Practically dried up, so that by 7-4-35 most of the scabes had separated.
Termination—Uneventful recovery.

Points of interest:—

1. Patient gets an exceptionally modified type of small pox though there were 2 cases of the confluent type in the same house.
2. The various stages of the disease are unusually shortened.
3. Quantity of serum injected 60 c.c.

The probable reasons for the modified attack are:—

1. Primary vaccination in childhood.
2. Administration of the serum in the earlier stage of the disease.

CASE II. (Serum Therapy in Vesicular stage).

Patient R. Hindu, Female child, 2½ years.
Vaccination.—Never done.

27-2-36.
Day of illness—9th day.
Type—Confluent.
Stage—Vasicular.
Restless and toxaemic.
Temp.—103°·4.
Circulatory and Digestive system—Negative.
Respiratory system—Slight catarrh in both the lungs.
20 c.c. of serum injected intramuscularly.

28-2-36.
Temp.—103°.
Restlessness and toxaemia—continue.
Catarrhal condition of the lungs—more prominent.
Stage—About 30% of the vesicles have dried up; in the rest, the fluid has become very turbid, and some are being converted into pustules.
20 c.c. of serum injected intramuscularly.

29-2-36.
Temp.—102°·4.
Toxaemia—Much less.
Lungs—Same as before.
Stage—About 80% of the eruptions are drying up; others have matured into pustules.
10 c.c. of serum injected intramuscularly.

1-3-36.
Temp.—100°.
Toxaemia and Restlessness—Gone.
Stage—All the pustules have dried up.
Lungs—Clearing up.

2-3-36 to 8-3-36.
Temp.—Gradually becomes normal.
Stage—Desiccation takes place quicker than usual, so that by 14-3-36 the scab separation is complete.
Termination—Uneventful recovery.

Points of interest:—

1. Efficacy of serum in the vesicular stage of the disease.
2. Course of the disease—definitely shortened.
3. Quantity of serum injected—50 c.c.

CASE III.—(Serum Therapy in Pustular stage

Mrs. C. Hindu, Female, 81 years.
Vaccination—Might have been done in infancy, but marks are not discernible.

4-3-36.
Day of illness—14th day.
Temp.—Axillary—99°. Rectal—100°·2
Vitality—low.
Pulse—108.
Respiration—34.
Lungs—Congested.
Heart—Negative.
Liver and Spleen—Both enlarged.

Could not be fed—for the last 2 days.
Type—Confluent.
Stage—Pustular.

Treatment:—

1. Rectal saline with glucose.
2. Subcutaneous saline with glucose.
3. Heart Stimulants hypodermically.
4. Serum 50 c.c. injected intramuscularly.

5-3-36.

Temp.—(Rectal)—99°·8.
Toxaemia—Markedly less.
Lungs—Same as before.
Stage—80% of the pustules have dried up.
50 c.c. of serum administered intramuscularly.

6-3-36.

Temp. (oral)—98°·2.
Toxaemia—Nil; patient takes drinks.
Lungs—Improving.
Stage—Desiccation has begun.
50 c.c. of serum administered intramuscularly.

7-3-36 to 14-3-36.

Improvement—Maintained.
Scab-separation & healing of ulcer—Complete.
Termination—Recovery.

Points of interest:—

1. Effectiveness of serum in the pustular stage of a complicated case.
2. Marked shortening of the course of the disease.
3. Quantity of serum administered 150 c.c.

CASE IV. (Haemorrhagic type).*

Mahommadan, Male-child, 6 years.
Vaccination—Never done.

1-4-36.

Day of illness—9th day.
Type—Haemorrhagic.
Eruptions infiltrated with blood; Petechiae and ecchymoses all over the body, including spaces between the pocks; profuse melaena; slight bleeding from the nasal mucous membrane.
Temp.—100°·4.
Pulse—Tension—low; 130 per min.
Lungs—Congested.
Extremely toxaemic—Semi-conscious.
Liver and Spleen—Enlarged.
Eyes—Congested.
20 c.c. of serum injected intramuscularly at 6-30 p.m.

2-4-36 (Morning).

Temp.—100°·4.
Pulse—Tension improved.
Lungs—Same as before.
Toxaemia—Much less.
Epistaxis and Melaena—stopped.
25 c.c. of serum injected intramuscularly at 7 a.m.

2-4-36 (Evening).

Temp.—100°.
Pulse—Tension—very much inproved.
Lungs—Congestion less.
Toxaemia—75% less.
Petechiae and Ecchymosis—75% absorbed.
Eruptions—Drying up.

3-4-36 (Morning).

Toxaemia—Nil.
Pulse—Tension-Almost normal; rate—100.
Temp.—99°.
Fresh petechieal haemorrhages—here & there.
Petechiae & Ecchymosis (old)—Same as on 2-4-36.
Eruptions—Fast drying up.
30 c.c. of serum injected intramuscularly at 9-30 a.m.

(Evening).

Toxaemia—Nil.
Temp.—98°·4.
Pulse—Normal.
Lungs—Same as on 2-4-36.
Petechiae and Ecchymosis—Showing gradual absorption.
Eruptions—Fast drying up.

4-4-36. to 6-4-36.

Improvement maintained.

Points of interest:—

1. A haemorrhagic type of case responds wonderfully well to serum treatment.
2. Amount of serum injected 75 c.c.

* Through the courtesy of Dr. Mihirlal Ganguly, B.Sc., M.B., who used our serum in treating his patient and gave us permission to report the case.

It must not be assumed, however, that serum injection was the only treatment we had recourse to in the above cases. As a matter of fact, symptoms were treated as they arose, and complications were tried to be combated with remedies of proved value. It has been our experience that like every other disease treated by specific serum, in small pox also the earlier the serum is administered, the better are the results. The effective dose has been found to be 150 to 200 c.c. in adults in the advanced stage of the disease, administered in repeated quantities of 50 c.c. each time; in the earlier stages however, lesser doses may be employed with advantage.

My grateful thanks are due to Dr. L. M. Biswas, Health Officer, Corporation of Calcutta, for giving me every sort of facility to carry on the research work, and taking lively interest in the small pox cases treated with serum in spite of his onerous duties. Mr. W. R. Sen Gupta, Superintendent, Calcutta Corporation Vaccine Depot., and the staff deserve my special thanks for their help in the animal experiments conducted by me. And lastly, I cannot conclude without gratefully recalling how Dr. T. N. Majumdar, Ex-Health Officer, made it convenient, when in office, to be personally present in some of the experiments with a view to encourage me.

(Paper read at a clinical meeting held under the auspices of the Calcutta Branch, I. M. A. on 28-3-36.)

REFERENCES

1. Preliminary report on the treatment of Variola by its Anti-toxin. Abstract of Sanitary reports, Marine Hospital Service, Vol. X, page 31, 1894.
2. Zeitscher. fur Hygiene, 1894, Vol. XVIII, page 318.
3. Philadelphia Medical News—February 2, 1895.
4. Annals of the Pasteur Institute—January, 1896.
5. *Lancet.*—1903, i,947.
6. NAKAMURA, T.—Ijikoron No. 841, 8; No. 842, 6 (1928).
7. LEDINGHAM, MORGAN & PETRIE.—The potency and the distribution in the serum fractions of antiviral body obtained by immunisation of the horse with Vaccinia Virus. *Brit. Jour. Exp. Pathol.* Vol. XII, No. 6, 357 (1931).
8. DE, SANTOSHKUMAR.—Thesis for M. D. Examination (Chap. VI)—Calcutta University (1933).
9. *Arch. Chin. de Bordeaux,* 1893.—Vol. II, page 317.
10. Compt. Rend. Acad. Sci., 1910.—CLV. 1536.
11. DE, SANTOSHKUMAR.—Thesis for M. D. Examination Calcutta University (1933).
12. VAOI HIDETAKE.—Experimental Serotherapy of Small Pox, *Japanese Jour. Exp. Medicine.* Vol. 13, No. 3, June, 1935.

JOURNAL
OF
THE INDIAN MEDICAL ASSOCIATION

Vol. V AUGUST, 1936. No. 11

EDITORIAL

REPORT OF THE UNEMPLOYMENT COMMITTEE, UNITED PROVINCES

It is a matter of no little congratulation that the seriousness of unemployment in the United Provinces had led to the investigation undertaken by the Committee of which the Hon'ble Sir Tej Bahadur Sapru was Chairman and to which he brought to bear not only his accustomed energy but also the experience which he has gained in Europe where he investigated methods of coping with unemployment. The Committee must be congratulated upon a thoroughly businesslike report and for their comprehensive grasp of the situation. Undoubtedly, they had in view only a particular section of the unemployed *viz.*, the educated classes, and their vision was also circumscribed by the fact that the investigation related only to the U. P. The recommendations, therefore, could not cover as large a field as the problem of unemployment demands, since unemployment is not a matter of one province alone but a matter concerning the whole country (nay the whole world) calling for interprovincial co-operation, the co-operation of the Government of India and also to a large extent of other countries. However they may be, the investigation has been extremely thorough, no important avenue of unemployment has been left uninvestigated or unconsidered, and the recommendations, which the Committee have made, are usually sound. Many of them cannot be carried into effect at once and are dependent upon assistance from Government both central and provincial and other bodies as well. For this reason alone it takes a long time to give effect to the recommendations. It will be realised that underlying the whole problem there is the necessity of raising the standards of the people, particularly agricultural classes; there is the question of Government's financial policy and taxation methods, the question of land tenure, and again the question of education, especially preliminary education. These things cannot be done in a day or even in a year and, even so, the Committee appear to realise that their suggestions are in the nature of palliatives rather than a panacea for unemployment.

It goes without saying that, while no reliable statistics were available to prove the fact, the Committee found that in the U. P. as elsewhere, there was considerable unemployment in the medical profession. While Lt.-Col. Stewart appears to differ from this view, the majority of witnesses agree with it and we have no hesitation, from our own experience and knowledge, in endorsing the view of the latter. It will be found all over India that large numbers of qualified medical men barely earn a living; on the other hand, the rural areas suffer greatly for the want of medical practitioners. This is inevitable since the rural areas offer little or no opportunity of earning a living (the people are so poor). The assistance rendered by Government and local bodies in attracting practitioners to rural areas is almost negligible. Col. H. C. Berkeley, pointed out to the Committee that there were only

21 private medical practitioners settled in rural areas in the U. P. and that in only twelve districts; a subsidy of Rs. 400/- per annum is paid to medical licentiates and a subsidy of Rs. 600/- to medical graduates by Government. The Committee have concluded that the whole system of medical organisation requires to be overhauled. Medical staff requires considerable strengthening, much greater incentive requires to be given to practitioners to settle in rural areas. The question of indigenous drugs is not overlooked and the Committee have recommended standardisation in chemicals and also the encouragement of the chemical industry. It would provide employment for a large number of qualified medical men. We are glad also to find the Committee set against the system of appointing one man to undertake the treatment of a variety of diseases. We also welcome the recommendations of the Committee that opportunities should be given for private practitioners to be attached to Government and local board hospitals with a view to gaining more experience and giving them a chance of becoming more efficient.

Dealing with public health, there is in the U. P. as elsewhere a great need for expansion, but in the Public Health Department itself, there appears to be no scope for further employment as constituted at present, which, on the other hand, has been a victim of retrenchment. Until therefore, this department is developed on a large scale, there is not much room for new entrants for some time to come. The Committee are undoubtedly right in remarking that the department should not have appointed men, who have not even passed the Matriculation examination, as assistant superintendents. These appointments on the salaries ranging from Rs. 40/- to Rs. 100/- per month, should attract a number of licentiates and graduates, particularly B.Sc.'s, who undoubtedly possess some scientific training and who should be capable of acquiring knowledge of sanitation and hygiene much more quickly and efficiently than the uneducated class of men, who have hitherto been recruited. The criticism appears to apply with even greater force to the Vaccination Department in which, it is stated, out of 48 assistant superintendents of vaccination, who get salaries ranging from Rs. 40/- to Rs. 100/- per month, not one is even a matriculate. Among other recommendations under this head, it is suggested that the number of medical officers employed in municipalities needs to be increased and that such municipalities that have no medical officers of health of their own should be asked to employ qualified men; that new schemes of sanitary improvement both in the towns and the villages should be taken in hand and qualified medical men possessing some diploma or degree in sanitation should be employed by district boards; that more adequate provisions should be made for medical inspection and treatment of school going children of the province and medical staff strengthened for this purpose; a further recommendation seeks financial assistance for these purposes from Government or fresh taxation by district boards.

There is, in the U. P., no separate provision for instruction in practical pharmacy, this training being available only to medical students at school. There is no Act, such as the Pharmacy Act in England, or examination conducted by Pharmaceutical Society of Great Britain. The importance of training in this line cannot be overestimated and the Committee recommend some provision for separate training in pharmacy which would provide a source of employment to a fairly large number of young men, who may not be qualified for or may not have the necessary means for higher medical education. This demnads suitable legislation and it would also be an advantage if in future Government employed only qualified men exclusively in the hospitals and dispensaries. The Committee suggest that a School of Dentistry should be established at King George's Medical College, Lucknow, and that suitable legislation should be passed prohibiting practice in dentistry to persons who are not qualified under the proposed Act, which contemplates the formation of a Dental Board in the province for its administration.

In the course of their investigation on the medical side, the Committee have lighted on many defects which have been only too apparent to people both in the profession and outside. The recommendations of the Committee are calculated to remove many of these defects and thereby to find employment for considerable numbers of medical men. Many of the recommendations of the Committee are in line with what has been advocated time and again by the Indian Medical Association but unfortunately without seeming to evoke much concern in official circles. We are glad, however, to see that the Committee face the issues clearly

and realise the need for adjustments and additional taxation instead of thinking in the negative terms of retrenchment in regard to a service that is niggardly served. The financial burden could not be heavy if the standard of living of the people is raised at the same time. To this end, the many economical measures suggested by the committee would help, while proper assistance to and organisation of the medical and public health services would react both to the physical and economic benefit of the people.

Under the head of medicine, there is hardly any reference to medical education in the Committee report except the remark on the facilities available in the province in the shape of medical clinics; the subject of the constitution of the I. M. S. is dismissed as being out of the scope of the enquiry. It would seem, however, that the question of medical education is connected with the question of general education, in which a certain amount of diversion appears to be necessary from the traditional and overcrowded professions to new avenues or old avenues which offer scope for development. It may have repaid the Committee's efforts if they had examined the training centres for medical education in the U. P. and given attention to the standard of teaching and facilities offered in training, as we are of opinion that the Committee may have lighted on much that calls for the re-organisation and the strengthening or improvement in the staff of medical teachers.

It is to be hoped that Government will give their serious consideration to the report and recommendations of the Sapru Committee and if they are capable of a tenth part of the sympathy, energy and business-like methods of Sir Tej Bahadur Sapru and his colleagues, we may then expect something definite to result to the advantage of the unemployed generally and unemployed medical men in particular. With the latter whom we are naturally more concerned. There are rumours that the Central Government and other Provincial Governments are contemplating the appointment of a similar Committee. We hope these rumours will prove to be correct; as we have pointed out, the question is one of the most urgent and pressing problems of the day in India.

XIII ALL-INDIA MEDICAL CONFERENCE

1936

The XIII All-India Medical Conference will be held at Karachi during the ensuing Christmas week. Subjects concerning the vital interest to the medical profession in India, will be discussed in the Conference. Scientific Section of the Conference and the Exhibition will no doubt afford every medical man a good opportunity to know the advance made in this country in medical science. In order to make this Conference thoroughly representative of the medical profession of India it is requested that all members of the profession should join the Conference and take part in the deliberations.

CASE NOTE

A CASE OF PREPONDERANTLY PROLIFERATIVE TYPE OF PULMONARY PHTHISIS (FIBROID PHTHISIS) BROUGHT ROUND BY HOME SANATORIUM METHOD

G. C. CHATTERJEE, M.B., F.R.I. (*Lond.*), RAI BAHADUR
Calcutta.

A male aged 30, a cultivator, came to consult me in the beginning of January last for such indefinite complaints, as sensation of heat over the body, pain over the spleen, passing of semen in the urine etc., but none to indicate the seriousness of the disease from which he was suffering from, namely extensive tuberculous lesion of the lung which was presumably going on for over 5 years. Chest examination elicited marked dulness and loss of breath sounds in the whole of the left lung, from apex to base, front and back. Only in the apex, marked crepitations were audible. Vocal resonance and fremitus were markedly increased over the whole of the left lung, showing that the symptoms were not due to effusion, but to a process very difficult to make out, but probably consolidation followed by ulcerative process, then by marked fibrosis and also atelectasis of some portions of the lung. The apex of the heart was dragged well beyond the nipple line. Whole of the chest wall (left side) was markedly shrunken. All evidences pointed to extensive proliferative lesion of the left lung. At that time he was not suffering from any fever. Careful interrogation elicited the information that he was losing health for over 5 years. During this long period, he had occasional high fever with cough lasting for about a couple of weeks which had been diagnosed and treated as typhoid fever by his previous medical advisers. There was a history of occasional haemoptysis. The intervening healthy periods were as long as 8 months or a year at a stretch, during which period he carried on his arduous occupation of an ordinary cultivator. When he came to me, he had just got over one of these febrile attacks this time it lasted for 15 days, temperature ranging between 98° and 102 F.

After a few days' rest in his own house he was allowed to come to my clinic every week for taking injections of tuberculin. He travelled from his native village (about 40 miles from Calcutta) by bus. He was asked to live as much out of doors as possible.

Contrary to expectation, he started gaining remarkably in weight under the course of tuberculin injection. At first his weight was 94 lbs., the next week it was 98. He went on increasing in weight, till it came to as much as 107½ lbs. In the second week he got an attack of rather severe haemoptysis. As it was unlike his previous attacks, which were in the shape of slight tinging with blood, his mind and that of his relations were upset. Rest in bed in his own house controlled the bleeding, without the intervention of any medical aid. Another noticeable point about the case was that the patch situated in the apex , where pronounced consonating rales were audible, showing destructive process, rapidly passed away, within the course of three weeks, *pari passu*, with the increase in weight and general improvement in his health. The apex could not now (fourth week) be distinguished in any way from the lower portion of lung except that a certain amount of breath sounds was audible here whereas none was audible in the lower part.

Discussion

Though the fibroid type of tuberculosis of lung is fairly common, these cases remain undetected for a long time, due to the patients not seeking advice

of medical men and that mainly because there is want of marked distressing symptoms; secondly because medical men due to their hurry, not unoften fail to make out the true condition of the patients.

Now, to unravel the mystery surrounding the case, the following hypothesis is put forward. The disease began most probably five years ago, as an ordinary subacute fibrocaseous tuberculosis of the lung, where fibrosis predominated afterwards over the exudative and ulcerative processes. The attacks of fever which occurred periodically were probably due to exudative lesion followed by ulceration which predominated for the time being over the beneficial process of fibrosis. When he came under my observation, the condition of the lung was very difficult to be made out by physical examination alone as x-ray was not taken at that time. There was at the beginning marked dulness, no breath sounds and no crepitation. There was no fluid in the pleura. That there was marked fibrosis of the lung tissue is proved by shrinking of the chest wall and dragging of the heart apex. Reappearance of breath sounds after 6 weeks treatment, suggests that the lung had expanded from a state of atelectasis.

Another noticeable feature was the complete absence of any respiratory difficulty, in spite of affection of the entire left lung and a good portion of the right as revealed by skiagraphy later on.

Lastly, marked improvement in his condition by adoption of Home Sanatorium method, in which tuberculin played its part, in apparently so run down a case shows that the case is not so run down as one will otherwise think from examination of the chest. The recuperative power, which had withstood so well against 5 years' onslaught of so terrible a disease and that in a person in abject circumstance required only a little help to set in operation its action to save his life.

Lastly, this favourable condition happened in the thatched house of an ignorant cultivator—a thing not often attainable even in the best of sanatoria proving that tuberculosis is a disease of contradiction.

Conclusion

(1) A pronounced case of proliferative type of pulmonary tuberculosis affecting both lungs, has responded very well to Home Sanatorium regime, by allowing the recuperative process, full play, which if interfered with, might have proved disastrous to the patient.

(2) This case proves the assertion of Pottengar that proliferative cases respond to tuberculin very much.

(3) This case disproves also his contention which is at variance with his above view that in preponderantly fibrosis cases prognosis is less favourable than in exudative cases.

(4) X-ray film shows extensive lesion in the right side, in addition to that of the left side, and which was not found by physical examination and so it may possibly be an old healed lesion.

(5) This case showing no dyspnoea in spite of extensive lung lesion involving the left lung, as well as a good portion of the right lung, as revealed by x-ray, does not require surgical interference. The dyspnoea which is associated with this type of disease, is often of nervous or of cardiac origin, which mechanical treatment, cannot rectify.

The following extracts from the treatise on "Tuberculosis in the Child and the Adult" by Francis Marion Pottenger is given, in order that the reader may realise for himself how self contradictory his opinions are:—(1) "Tuberculin is a great aid to the sluggish proliferative process. It seems to check the spreading of the bacilli". (2) "Most patients who have a proliferative lesion so extensive as to cause an emphysema of such a degree as to cause dyspnoea cannot afford to have their lung capacity reduced any further by any of the operative measures, (pneumothorax, pherenicectomy) which encroach on the reserve lung area. In cases where they did, they did so by relieving the pulmonary tissues from tension and reducing heart strain". (3) "Pneumothorax is the least objectionable of any of the measures, in treating such patients, because the increased limitation of lung volume may be made temporary only, and can be relieved at any time by allowing the lung to expand." (4) "If, however, both lungs are the seat of extensive proliferative lesions, emphysema is usually present to such a degree that the collapse of one lung may be attended by much dyspnoea and incapacitation of the patient. When possible, such patients should

be spared any operative measures which further, permanently, limit lung volume". (5) "It will be seen that the proliferative type of tuberculosis, on healing, does not leave a clear lung field such as the preponderantly exudative type does. While it is usually considered the milder form of the disease it does not offer chances of as complete healing as the preponderantly exudative process."

Fluoroscopy done on 18-4-36 *i.e.*, 3 months after the beginning of treatment: Front view—whole of the left side unilluminated. Outline of the heart cannot be made out, nor the dome of the diaphragm.

Right side—shows complete illumination except certain patches in the 3rd and the 6th spaces, Dome of the diaphragm can be made out and its range of movement during respiration is normal.

Lateral view of the left lung from the left side:—heart outline made out clearly—through a clear portion of lung (bottom part), as also the dome of the diaphragm and its range of movement during expiration and inspiration can be clearly made out.

The x'ray film was taken on 18-4-36 *i.e.*, 3 months after he was first treated, when the healing process had already started.

Film shows marked flattening of the left side of the chest wall. The ribs from 2nd rib downwards have become markedly curved, even the vertebral column has shared in general curvature towards the left side. Whole of the left lung field occupied by a dark shadow. Heart drawn towards the left.

The right border of the heart is on a line with the right border of the sternum instead of lung outside it. Right lung field occupied from 3rd to 6th space by patchy dulness.

COPY OF THE CASE SHEET.

5 years history. Slight haemoptysis. Occasional high fever. Pain in the chest. Left lung (whole) in fibrotic condition. Heart apex two inches outside the nipple line.

Date	Dose of tuberculin in part of Mgm.	Weight in pounds.	Physical Signs.
20-1-36 ...	900,000 ...	94	
27-1-36 ...	800,000 ...	98	Complains of heat but no fever.
4-2-36 ...	500,000 ...	100	Crepitation over the left apex, pectoriliquy over the apex, severe haemoptysis.
11-2-36 ...	450,000 ...	100	
17-2-36 ...	300,000 ...	103	Whole of the left lung from apex downwards—perfectly dull, no respiratory sounds audible.
25-2-36 ...	200,000 ...	103	No crepitation audible over the apex.
5-3-36 ...	128,000 ...	104	Left supra &c infrascapular region, dry sounds.
14-3-36 ...	80,000 ...	105	No crepitation, pectoriliquy over the supraclavicular regions—slight haemoptysis.
21-3-36 ...	50,000 ...	105	Left side, front and back slight respiratory sounds audible.
28-3-36 ...	32,000 ...	107½	Left side.
4-4-36 ...	20,000 ...	107½	
11-4-36 ...	12,000 ...	107½	
18-4-36 ...	8,000 ...	107½	
25-4-36 ...	5,000 ...	106½	Says he had slight fever.

REFERENCES

1. POTTENGER, F. M.—Non-Operative versus Operative measures in the Treatment of Pulmonary Tuberculosis. *American Journal of the Medical Sciences*, August, 1934, No. 2, Vol. 188, p. 169
2. POTTENGER, F. M.—Tuberculosis in the Child and the Adult. St. Louis, 1934.

MODERN THERAPY IN GENERAL PRACTICE

OBESITY—ITS PATHOGENESIS AND TREATMENT

S. C. ROY, M.B., M.R.C.P.

Darjeeling.

Obesity is a disorder of metabolism, which is characterized by excessive deposit of neutral fat in the body. This accumulation of excessive fat may occur in all possible depots of the body,—in very obese persons, fat after filling its usual depots *e.g.* mesentery, omentum, epicardium, tissues about the kidneys, tissues of the orbit etc. seems to overflow into the most unexpected localities—extends into the wall of the heart and appears under the endocardium, and even spreads around the free surface of the intestines.

The most obvious and best known function of fats lies in their acting as food stuffs. In their oxidation to set free energy in the form of heat, they require more oxygen than carbohydrates, so that the respiratory quotient (CO_2/O_2) is about ·795. As they can be conveniently stored, they form the ideal material for the accumulation of a source of energy. It has been held that fat forms a lipoid envelope around each cell, each nucleus, and each vacuole, and is primarily instrumental in regulating the metabolism of cells.

Lipoid substances, especially phosphatides and cerebrosides, play an important part in the constitution of the nervous system. From their arrangement in the myelin sheaths of nerve fibres, it would appear that they may act as insulating material which insures the passage of nervous impulses to the correct end organs.

Neutral fats play an important part in their relation to enzyme action. Unsaturated fatty acids and their soaps have the most decisive inhibitory action upon proteolytic ferments, this power being in a sense proportionate to the degree of unsaturation. Lipoid substances may sometimes accumulate in an organ for the protection of the cells of that organ from toxic injury. Some lipoid substances, especially cholesterin, act as inhibitory or neutralizing agents against such haemolytic poisons as saponin, cobra poison etc. It also appears to have a protective influence of some kind during pregnancy. From the above it will be seen that fat has numerous essential functions to serve in the body, but when it accumulates excessively thereby hampering vital organs in their normal function, it becomes a disability.

The Chief Varieties of Lipoids Found in the Body

1. Neutral fats—which form the great bulk of the subcutaneous and depot fats. They are esters of glycerine with fatty acids.

2. Cholesterine—this occurs in wide distribution throughout the body as the normal constituent of cells and body fluids, either free or as esters.

3. Phosphatides—these are of great biological importance. The best known are lecithin and kephaline—the latter is the chief phosphatide of the brain.

4. Cerebrosides (glucosides)—occur in the white substance of the brain, blood, spermatozoa etc.

Absorption of Fat

The great source of fats in the human body is to be found in animal food. Some are derived from carbohydrates and since carbohydrate can be formed from amino-acids derived from protein, fats are also indirectly formed from protein. Cholesterine comes from animal food—probably it is produced in the bodies of herbivorus animals from physosterines in plants.

Taken into the intestines, fats are absorbed by the action of lipolytic ferments and bile. They are broken down into glycerine and soluble soaps, which are reconstituted into fats in the intestinal walls. Whether all foreign fat is remoulded into human fats in the intestinal walls is not known.

How cholesterine and its esters enter into the body is not known. They are stored in the adrenal cortex, corpus luteum, endothelial cells of the spleen and liver, it is believed that there is a reticulo-endothelial apparatus controlling their intermediary metabolism.

Obesity is seen in certain particular races—Dutch, Germans, Indians, etc. It is also particularly noticeable at certain periods of life—in men after 40 years and in women during pregnancy and the menopause. It indicates that the caloric value of the diet is in excess of the individual's need. Heredity plays an important part in a considerable number of the cases. The specific dynamic action of protein may be at a lower level than normal. It may occur on subnormal intake of food. Sometimes the existing habits of a family are more responsible than the heredity.

Types of Obesity

Obesity can be broadly divided into two types:

1. Exogenous. 2. Endogenous.

Exogenous Obesity—may be due to excessive or to insufficient output, frequently both factors are at work. This type is usually seen after 40 years of age. A man eats in excess of his requirements because the habit of eating large meals contracted in his athletic youth has persisted though the muscular output has gradually declined. Extra intake of alcohol, especially malted liquor by depressing the action of the thyroid gland, serves to make the condition worse. The B.M.R. is usually normal in this group. Dysfunction of the endocrine glands is not usually present, though evidence of slight thyroid and gonad defficiences may be found on examination.

Endogenous Obesity.—The differentiation between endogenous and exogenous types is not always easy. In some cases it appears at or about puberty, or in women after childbirth, menstruation, menopause etc. In other individuals it is inherited and appears shortly after birth or about the time of the second dentition. Obesity of thyroid origin, usually develops rapidly with symptoms of hypothyroidism. In obesity of pituitary origin the distribution of fat is characteristic, being especially marked about the girdles. It is most commonly found in children and adolescents, usually accompanied by signs of disturbance of growth and general function. Sometimes obesity is due to hyperfunction of the pancreas during the pre-diabetic period.

In many cases instead of there being dysfunction of a single gland, the whole of the endocrine system is at fault—this polyglandular syndrome is most frequently based on a pituitary lesion. It has been found that practically all the other endocrine glands are influenced by some hormone formed in the anterior pituitary body. We now believe that anterior pituitary (largely controlled by the diencephalon) produces an activating or an inhibitory hormone of a protein character according to demand, which can speed up or inhibit the secretion of the simple grade of hormones in other endocrine glands. In the endogenous type the B.M.R. and the sugar tolerance are usually abnormal.

Treatment

Treatment of the obese patient is not always satisfactory, especially in the endogenous type. Co-operation and perseverance on the part of the patient is essential. Many of the patients wish to regain their former slimness with the aid of drugs only, without taking the necessary trouble of reducing the intake of food or increasing the output of energy. It must be clearly emphasized, that unless an obese person shows manifest signs of endocrine deficiency, dietetic restriction must be given a fair trial, before any drug is advised. The caloric value of his food should be calculated before any treatment is begun and the basal metabolic rate should be elicited by Read's formula—683 (PR + 9/PP) − 71·5 B.M.R. If the B.M.R. is found normal or thereabout, cutting down of the caloric value of food, should be sufficient, though it may be many weeks before the result becomes manifest.

The treatment of obesity may be subdivided as follows:

1. Diet. 2. Exercise. 3. Drugs.

A. *Dietic*—begin the first day with starvation. Hunger depends greatly on habit. If hunger is not 'treated' after a few days it weakens and the patient will reconcile himself to the restricted dietaries allowed to him. During the fasting day, which should be once a week, the patient is allowed only tea or coffee sweetened with saccharin and a little soup.

During the rest of the week one should lower the calories of the food to about 1,500. Reduce mainly the carbohydrate and fat in the food. No sugar should be allowed. The intake of fluid should be restricted to about 1200 c.c. per day. We must deny food to the patient, so that he will live on the surplus in storage. Rapid reduction in weight should not be aimed at—2 lb. reduction a week is quite satisfactory. Alcoholic drinks are best avoided, because they increase the appetite, depress the action of the thyroid, and are physiological fat preservers.

B. *Exercise*—Graduated exercises; massage, walking, and later riding, tennis, and other games should be advised. The exercise recommended should be for preference in a form to which the patient is not accustomed, unless the exercise is unusually severe. Adaptation occurs to habitual exercise of moderate degree, so that less fuel is used. In the case of dyspnoea or serious cardiac trouble, exercise should not be advised. Faradisation by the Bergonie System, has recently been successfully used; by this means the principal muscles are made to contract rhythmically and in regular order against a load.

C. *Drugs*—(1) Glandular products:—the most efficacious of this group is thyroid extract. It is especially useful in cases showing signs of thyroid deficiency. One should start with ½ grain of a reliable dessicated extract once a day and work upto a point at which the patient loses 1 to 2 lb. of weight per week. This rate of loss should be maintained, though as tolerance increases, it may be necessary to increase the dose still further. Some patients may require as much as 15 grains per day. The dose can be more accurately regulated by repeated estimations of the B.M.R.; an attempt being made to maintain it at a level of about +10%. Signs of intolerance indicate temporary withdrawal or diminution of the dose. The treatment should be persevered with, until the patient's weight is about the average for his height and age. When this is achieved, the thyroid extract should be omitted and the quantity of food cautiously increased. The weight should be ascertained each week and the diet reduced, if necessary. As many cases of obesity are due to polyglandular dysfunction, polyglandular products are often of greater benefit than any single gland product. Combination of thyroid extract with ant. pituitary will be found useful in many cases.

(2) Dinitro-Phenols—possess a marked influence on metabolism, which is greatly stimulated by their use, increasing oxygen consumption, and in large doses producing hyperpyrexia. The action of the drug in stimulating the metabolic rate is due to increased consumption of oxygen in the tissues and is independent of nervous or glandular action. The drug most commonly used is 2:4 Dinitrophenol. If the average daily oral dose of 5 grs. of the drug is not exceeded, no severe cumulative or toxic effects appear to be produced. It acts very quickly within ¼ of an hour after administration and in 48 hours the metabolism falls to normal again, unless the dose is repeated. No great increase in pulse rate or change in blood pressure is observed: hence the B.M.R. cannot be deduced from Read's formula. The subjective sensation of heat produced is not unpleasant. Unless the B.M.R. rises over 30%, uncomfortable symptoms of heat and sweating are not experienced. This drug is of no use in the treatment of symptoms of endocrine deficiency. It is of course hardly necessary to mention that the drug in question has been in use for a relatively short period of time, and though no statistics are at present available to demonstrate possible ill effects—it should be used with caution in view of the fact that it belongs to a group, some of the members of which are known to produce severe toxic effects upon the liver.

—(*Read at a meeting of the Darjeeling Branch, I. M. A.*)

CURRENT MEDICAL LITERATURE

MEDICINE

Etiology of Abdominal Pain in Diabetic Acidosis

WALKER (*Annals of Int. Med.*, March, 1936, page 1178) observes that abdominal symptoms in prediabetic coma simulate so much surgical abdomen that a differential diagnosis cannot often be made without qualifications. One distinguishing point is that in diabetic coma vomiting precedes pain where as in surgical conditions of abdomen pain precedes vomiting. The author cites an interesting case in point. In the patient vomiting preceded the pain by several hours and he had insulin in large amounts to control acidosis before being admitted into the hospital. On admission his general condition became low for which a small quantity of normal saline was administered which promptly relieved the symptoms though the laboratory tests showed evidence of acidosis still persisting. The author contends that acidosis was not solely responsible for the symptoms nor could insulin relieve them but salt solution brought in the relief of the pain and he gives a rational explanation in the following lines: From improper oxidation of fat acidosis develops and acidosis in susceptible persons causes vomiting: the latter depletes the body of sodium chloride, excessive diuresis helping further depletion and this produces in abdominal muscles and muscles of respiration which are in a state of marked activity a condition similar to that in heat cramps and gastric tetany. Thus depletion of salt is the cause of pain and the latter is promptly relieved by administration of saline solution.

Bacterial Endocarditis and Cardiac Irregularities

SEGAL (*Amer. Heart Journ.*, March, 1936, page 309) reviews the literature on cardiac irregularities in bacterial endocarditis, rheumatic heart disease and rheumatic fever and report on a study of 192 cases of bacterial endocarditis with electro-cardiographic records in 67 cases and observes that there were 4 cases of auricular fibrillation, 2 of auricular flutter, 9 of heart block, 2 of prolonged QRS interval, 1 of prolonged QT interval, 1 of left bundle-branch block, 9 of gallop rhythm, 15 of extra systoles, 21 of left axis deviation and 6 of right axis deviation. The author further observes that premature beats, gallop rhythm and disturbance in conduction time are far less frequent in bacterial endocarditis than in rheumatic heart disease. Auricular fibrillation and flutter are extremely rare and when they occur they are related more to functional integrity of the cardiac muscle than to any degree of mitral stenosis.

The Effect of introducing Blood from Patients with Hypertension into other Human Subjects

PICKERING (*Clinical Science*, Vol. 2: No. 2: page 185) reports that the transfusion of blood from patients with essential hypertension produced in anaemic subjects only a little change in the arterial pressure and the changes noted are no greater than those produced by transfusion of equal volume of normal blood. The author noted the following points during his observations. He observed that the recipients were not seriously ill at the time of transfusion, had normal blood pressure and responded next day to 0·25 mg. of adrenalin injection by a rise in the systolic pressure of 6 to 12 mm. Hg.; that the time elapsing from the withdrawal of blood to its insertion was reduced to less than a minute giving thereby the hypothetic pressor substance little chance of being readily destroyed and that the injected blood was diluted only to the extent of 1 in 6 to 1 in 9. These observations go to disprove the idea that the raised blood pressure in essential hypertension is due to the presence of an excess of a pressor or a deficit in a depressor substance in the circulating blood.

The Cardiovascular State in Thyrotoxicosis

MAHER AND SITTLER (*Journ. Amer. Med. Associ.*, May 2, 1936, page 1546) review that literature on the cardiovascular state in thyrotoxicosis and report 180 cases observed by them . These cases include (1) thyrotoxicosis uncomplicated by structural heart

disease (20·6%), (2) throtoxicosis with organic heart disease 75·5%, (3) neurocirculatory asthenia with possible thyrotoxicosis 3·8%. In the first group of cases of uncomplicated thyrotoxicosis the subjective symptoms are limited to palpitation and rapid heart-beat and objective signs are tachycardia and lability of the blood pressure to emotional state—one case only showed auricular fibrillation (electrocardiogram). In the second group of cases of thyrotoxicosis with organic heart disease subjective symptoms such as dyspnea, cough, angina, stenocardia, hemoptysis, and physical signs such as murmurs, thrills, friction rub, gallop rhythm and arrhythmias are present. These organic heart disease cases fall under one or combinations of the following groups:—(a) hypertensive vascular disease, (b) rheumatic valvular disease, (c) arteriosclerotic coronary disease, (d) syphilitic *cardiovascular disease*, (e) *Cor pulmonale*, (f) thromboendocarditis. In discussing the inter-relationship between thyrotoxicosis and various types of structural heart disease, the authors note that the course of the organic heart disease progresses more rapidly when thyrotoxicosis is active and thyrotoxicosis flares up latent cardiovascular lesions which again become latent when thyroid toxaemia is successfully terminated. The authors conclude that the surgical mortality and morbidity can be greatly reduced if we can recognise and manage all the pathological changes particularly in the cardiovascular system.

Ergotamine Tartrate and Bilateral Gangrene of Feet

YATER AND CAHIL (*Journ. Amer. Med. Associ.*, May 9, 1936, page 1625) report a case of toxaemia with jaundice of unknown origin developing gangrene of the feet caused by ergotamine tartrate which was being given in large doses for pruritus. The authors note that the microscopical study of the vessels reveals occlusion of small and medium-sized arteries and arterioles by constriction and thrombosis, the proliferation of the intima and infolding and projection of the same into the lumen of the vessels and hyaline degeneration of the vessel-wall. They report that this is the first case of gangrene of the feet due to an ergot preparation in which arteriograms have been made. The authors observe that the drug should not be used in febrile puerperium, in cases of severe toxaemia from any cause and in patients who show signs of vascular disease, functional or organic and that whenever the drug is used careful watch should always be kept for the appearance of any toxic symptoms including signs of impaired peripheral circulation and that on the appearance of these the drug should be stopped immediately and epinephrine and papaverine should be tried for the relief of the vascular spasm.

Life Expectancy in Coronary Thrombosis

WILLIUS (*Journ. Amer. Med. Associ.*, May 30, 1936, page 1890) reports on the study on 370 cases observed at the Mayo Clinic regarding the life expectancy of patients having coronary thrombosis and the influence of various factors on early disolution or recovery. The author observes that in 71·9% the thrombosis occurred between 50 and 70 years, in 1·6% between 30 and 40, in 17% between 40 and 50 and there was no single case in persons below 30 years of age and males were more affected than females, the ratio being 7 to 1. Single attack occurred in 80·3%, two attacks in 17%, 3 in 2·2%, 4 in 0·5% of the cases. He further observes 51·6% of the cases died due to causes directly attributable to heart and 2·7% died of pneumonia, cancer and nephritis and of the cardiac death 36·6% was due to coronary thrombosis, 51·9% to gradual cardiac failure and 11·5% sudden death of uncertain mechanism and that the rate in cardiac death increased progressively with recurrent coronary thrombosis. The author notes that 45·7% of the cases observed are still living and of these 42·6% are in good health, 28·9% are having repeated anginal attacks, 3·6% had congestive heart failure and 1·8% had cerebral vascular accidents.

On the Role of the Anterior Pituitary in Human Diabetes

WESSELOW AND GRIFFITHS (*Lancet*, May 2, 1936, page 991) bring into prominence the role of anterior pituitary substance in the etiology of diabetes. The authors review the experimental work of Houssay who showed first in toad and subsequently in dog that the removal of the anterior pituitary gland in depancreatised animal is followed by amelioration of the diabetic symptoms and that the injection of anterior pituitary substance into such depancreatised hypophysectomised animal causes reappearance of the symptoms and that the anterior pituitary substance when injected into normal healthy toad,

dog and other animals produces hyperglycaemia, glycosuria, and ketonuria. This diabetogenic action of the anterior pituitary substance is confirmed by the authors' experimental observations which show that the blood of elderly obese diabetic patients when injected into rabbits checked the hypoglycaemic action of insulin in a way similar to that observed by other workers with anterior pituitary substance, the blood of young diabetics or that of normal healthy controls giving entirely negative results.

SURGERY

Appendicitis

HOBLER (*Ann. Surgery*: 1936: 103: 86) in reviewing 4,791 cases in which the appendix was removed at the Methodist Episcopal Hospital, Brooklyn observes that of these cases 2,260 were cases of acute appendicitis; 48% were male, 52% female and the patients ranged from 1 year to 80 years. In 2,130 cases the operation was done under general anaesthesia (nitrous oxide oxygen and ether), spinal anaesthesia in 111 cases, local anaesthesia with novocaine in 12 cases, avertin basal anaesthesia in 3 and amytal basal anaesthesia in 4. The author notes that spinal anaesthesia was found to be markedly superior to general anaesthesia in cases of acutely ill patients, particularly elderly persons. The Mcburney's incision was employed in 71% of the cases, the right rectus incision in 28% and the midline incision in 1%. Delay in operation and use of cathartics are the 2 chief preventible factors in the high mortality of acute appendicitis. Of the post-operative complications the following are mentioned:—In undrained cases abscess formation in 4 cases, and peritonitis in 2 cases: In drained cases—abscess formation in 9 cases, fistula in 8 cases, phlebitis in 10 cases.

Intraperitoneal use of Amniotic Fluid to Promote Post-Operative Convalescence

GEPFERT (*Amer. Journ. of Surg.*, April, 1936, page 40) reports on the excellent results obtained by using concentrated sterile bovine amniotic fluid (amfetin) into the peritoneal cavity of cases of extensive and severe pathologic condition of the pelvis. Of 100 consecutive laparotomies 50 had the amniotic fluid and the remaining 50 were used as controls and there was great improvement in the general condition of the patients under the treated group with death only in 3 cases. A comparative study reveals that these patients were able to take and retain fluids earlier and in larger amounts, were able to void and pass flatus earlies than the control group though the former series contained more serious cases who were subjected to more extensive surgery than the latter.

Staphylococcus Anatoxin in the Treatment of Staphylococcic Affections

RAMON AND HIS ASSOCIATES (*Presse Med.*, 1936, 44: 185) report on the successful treatment of recurrent and chronic staphylococcic infections with toxoid which is prepared by adding formalin to the heated filtrate of a broth culture of staphylococci. The treatment consists of injections of 0·5, 1·0 and 2·0 c.cm. at one week's interval with a total of three doses which is followed by a mild local reaction only, the severe reactions of allergic nature having been never observed in their series. The report is based on the observations of the authors' 250 cases and about 250 cases reported by other physicians. Authors' series contained 131 cases of furunculosis and the result was very satisfactory except in 7 cases of which 3 were diabetics. The results in cases of sycosis and other pustular skin affections were similarly encouraging. The report from other physicians was also satisfactory. A small number of osteomyelitis cases treated with toxoid showed that the therapy checked the bone destruction but the authors are not in a position to pronounce any opinion on its value in non-cutaneous lesions.

Gill Bone-Block Operation for Foot-Drop

WHEELDON AND CLARK (*Journ. Amer. Med. Asson.*, 1936. February 8, 447) report on the very successful results obtained in 23 cases of foot-drop by the Gill bone-block operation which consists of insertion of a bony wedge in the posterior articular surface of the astragalas.

Disorders of Accessory Sinuses in Nurslings

SCHONBERG (*Archiv. fur. Kinderheilkunde*, March 17, 1936, page 216) reports that she found amongst 232 necropsies made on nurslings 154 cases of empyema of one or several of the accessory sinuses and that this incidence of sinus affection was great

amongst dyspeptic children. She writes that the studies are still inadequate to prove definitely the existence of etiological relationship between sinus infection and dyspepsia but she suspects of such a relationship being present in view of the parenchymatious impairment of the liver existing amongst majority of cases caused probably by slow infection from the sinuses and this liver involvement again according to the author is the cause of persistent dyspepsia in those patients. The author recommends short wave therapy for treating sinus disorders and dextrose for the liver in addition to the usual methods employed.

Effect of Gonadotropic Extract of the Pituitary in Cryptorchidism.

WARNER AND HIS ASSOCIATES (*Journ. of Amer. Med. Assoc.*, May 2, 1936, page 1541) observe that anterior pituitary gonadotropic extract is effective in causing descent of the testes in many cryptorchid boys and advise that anterior pituitary gonadotropic extract or anterior pituitary-like substance should be tried for at least a month before any operative interference is made and they note that the operation is justified only when treatment by such substance fails.

Chemical Treatment for Erysipelas

KRAMAR (*Munchener Medizinische Wochenschrift*, April 10, 1936, page 608) reports on the successful treatment of erysipelas by injecting intravenously "protonsil" in doses of 20 c.c. once or twice a day. This therapy reduced the febrile period, checked the disease process and brought on the improvement in the general condition more quickly than other methods of treatment. Protonsil is said to be of value also in streptococcal septicaemia. The author notes that he noticed no ill-effects produced by the drug. The report is based on 23 cases treated by the author.

OBSTETRICS AND GYNAECOLOGY

Eye Changes in Hypertensive Toxaemia of Pregnancy

HALLUM (*Journ. Amer. Med. Associ.*, May 9, 1936, page 1649) reports on the eye changes in 300 cases of hypertensive toxaemia of pregnancy. He observes that generalized narrowing and localised spastic condition of the retinal arterioles are the earliest changes found in the fundus oculi and retinal oedema, haemorrhages and exudates are later developments. The frequency and degree of lesions of the fundus oculi follow the severity of the hypertension. He further observes that the vessels may regain their normal calibre if the blood-pressure is reduced to normal but if not the pregnancy must be terminated before the onset of retinitis. The author notes that if retinitis develops before the 28th week of the pregnancy there is about 25% chance of the patient delivering a living baby and there is 100% chance of permanent vascular-renal injury developing. Retinal detachment occurs in about 2% of hypertensive toxaemias of pregnancy and the detachments become usually reattached within 10 days after termination of pregnancy.

Tuberculosis of the Cervix Uteri

FINLAISON (*Br. Journ. of Obst. and Gynaeco.*, June, 1936, page 473) reviews the literature on tuberculosis of the cervix of the uterus and reports a case in which the cervix, the vulva and the perineum were all infected with tuberculosis. The author observes that primary tuberculosis of the cervix is rare and in majority of instances infection is by coitus. He further observes that genital tuberculosis is not so uncommon as is believed and is usually secondary to pulmonary lesion, the infection being bloodborne and spread being by surface continuity. The author suggests for treatment complete removal of the infected parts in cases without any active extragenital lesion and conservative treatment in presence of such lesion as radical treatment at this stage will cause exacerbation of the primary focus.

Collip's Emmemin in Menopause

MACFARLANE (*Amer. Journ. of Obst. and Gynaec.* April, 1936, page 663) reports on the result of Collip's Emmemin liquid (complex type) in women complaining of vasomotor disturbances of the menopause. Emmemin is an estrogenic extract obtained from human placenta and is given by mouth 3 times a day in doses of 1 teaspoonful in water. 18 women were treated and of these 10 improved, 8 very definitely and two rather indefinitely. The author observes that the eight cases which showed marked improvement had their treatment started very early and in two of them the menopause was surgical following supravaginal hysterectomy and bilateral oophorectomy.

Uterine Bleeding of Functional Origin

WILSON AND KURZROCK (*Amer. Journ. of Obst. and Gynec.*, June, 1936, page 911) describe five types of functional bleeding *viz.*, puberty, maturity, preclimacteric, ovulation, cyclical or anovulatory and discuss the influence of the myometrium, the endometrium, the ovary and anterior pituitary on menstruation. The authors then report some selected cases which show that functional bleeding is independent of the type of endometrium, that endometrial hyperplasia persists long after the bleeding stops and that the cause of the bleeding must be extraendometrial. To explain both the menstrual and functional bleeding the authors suggest a theory based on the assumed presence of a bleeding factor (hormone) in the anterior pituitary gland. They then discuss the treatment of functional bleeding by prolan A and B.

Menarche, Constitution and Delivery

WESSER (*Zentralblatt. fur Gynakologie*, March 28, 1936, page 728) observes that the time of the menarche has considerable influences on the constitution and the genital function of women and Feldweg's report on 3,000 cases show the higher incidence of menstrual disturbances and pathological deliveries amongst women with premature or belated menarche than among women with normal menarche. The author's study on 1,115 deliveries reveals that in women with belated menarche the difficulties produced by skeletal structure (narrow pelvis) are most common and in women with permature menarche the complications of soft parts (perineal tear, episiotomy) are most frequent.

Vesico-Vaginal Fistula

PHANEUF (*Amer. Journ. of Obstet. and Gynaec.*, 1936, 31: 316) reports that 10 cases of vesico-vaginal fistula occurred amongst 10,000 consecutive obstetrical and gynecological cases (1 in 1,000) and in 1 case the fistula was due to obstetrical cause and 5 to surgical causes. 27 operations were done to close the fistulas and of these 8 were done by other physicians and 19 by the author. The largest number of operations done on a single person was 6 and the smallest 1. 9 of the fistula was closed through the vagina and 1 was closed by suprapubic extraperitoneal operation. The various operative methods are then discussed and reports of 10 cases are given in detail.

PATHOLOGY AND BACTERIOLOGY

A New Method of Determination of Dextrose in Urine

GUGLIUCCI (*Reforma Medica.*, March 21, 1936, page 389) describes a new test for quantitative estimation of glucose in urine. The test is based on the fact that glucose reduces potassium ferricyanide into ferrocyanide changing the yellow color of the former when glucose is added to solution of ferricyanide at a very high temperature. The reagent consists of a solution prepared with 9·90 gm. of potassium ferricyanide, 60·85 gms. of anhydride of sodium carbonate and distilled water to make up 1000 c.c. solution. The technique of the test is as follows: 10 c.c. of the reagent is taken in a test tube and heated to boiling point and sample of urine is put into it drop by drop from a pipette graduated in hundreths of a cubic centimeter. After each drop is added the solution is boiled and its color is examined and the test is repeated until the yellow in it completely disappears. The calculation made by dividing 10 (which is the amount of reagent solution used) by the number of c.c. of urine added and this represents the amount of dextrose in gms. contained in 1000 c.c. of urine. The test gives results similar to that obtained by other methods and is easy, quick and inexpensive.

Subclinical Adenoma of Pituitary Gland

COSTELLO (*Amer. Journ. of Pathology*, March, 1936, page 205) reports that of 1000 pituitary glands examined, 225 were found to be adenomas and of these 52·8% were chromophobic, 7% eosinophilic, 27·2% basophilic and 12·4% mixed types. The author notes that the greatest incidence occurred in the sixth decade of life, the youngest subject having it was 2 years old and the oldest 86 years old, the incidence being equal in both sexes. The clinical features were nil even in cases in which the adenomas were so large as almost to destroy the gland and hence the justification of the term "subclinical adenoma" applied to them. The author observes that small adenomas of the anterior pituitary gland instead of being relatively rare occur quite frequently.

Hematology of Tuberculosis

MILLER (*Nebraska State Medical Journal*, April, 1936, page 1409) observes that the determination of

the rate of blood sedimentation in tuberculosis is indicative of pathologic activity (cellular destruction) and not diagnostic or prognostic and the severity of the disease may be determined by plotting a curve of the rate of sedimentation against time interval; viz, a horizontal line is normal, a diagonal line shows mild activity, a diagonal curve moderate activity, a vertical curve marked activity. The author further observes that the test is of extreme value in absence of definite clinical and roentgen signs. The combined study of Schilling test, blood sedimentation rate and monocyte-lymphocyte ratio will help in determining the prognosis, the degree of activity and the efficacy of therapy in the case, the laboratory tests helping only in demonstrating the presence or absence of pathologic activity.

Hemography in the Diagnosis of Appendicitis Based on 500 Cases

CROCKER AND VALENTINE (*Journ. of Lab. and Clin. Med.*, June, 1936, page 883) describe a modified Schilling hemogram by which accurate diagnosis of appendicitis can be made, of course the history and clinical symptoms must be taken also into consideration. The authors further note that it is possible with the help of hemogram, history and symptoms to distinguish between eight degrees of inflammation or pathologic states of appendicitis.

Isolation of Enteric Organisms

JONES (*Journ. of Path. and Bact.*, March, 1936, page 445) recommends the combined use of sodium tetrathionate broth and brilliant green-eosin-lactose-agar media for isolation of enteric organisms from the urine and faeces of typhoid fever patients. These media are superior to MacConkey's medium as they inhibit markedly the growth of B. coli, B. dysenteriae (Shiga and Flexner). B. Morgani, and strepto. faecalis and also inhibit partially B. dysenteriae (Sonne) and proteus vulgaris.

RADIOLOGY & ELECTROTHERAPEUTICS

Visualization of Cerebral Vessels

LOMAN AND MYERSON (*Amer. Journ. Roentgenol. and Rad. Therapy*, February, 1936, page 188) describe a method of visualization of cerebral vessels roentgenographically and this is by injecting colloidal thorium dioxide directly into the carotid artery and taking the film immediately after the injection. They then describe in detail the procedure of injection taking particular care in seeing that the needle is in the carotid artery and for making the concentration of the medium within the cerebral vessels sufficient enough for good roentgenographic visualization by compressing either the homolateral carotid at the root of the neck or by strongly compressing both internal jugular veins over the sternomastoid muscles. The injection is given in 10 c.c. dose. The roentgenographic technique is as follows, tube distance 60 inches; 80 kilovolts (peak); 50 milliampere; exposure ½ second. Lateral views of the skull are taken. Excellent arteriograms are made by making the exposure immediately after the injection. A fair phlebogram may also be made from 3 to 4 seconds after the first film is taken.

Treatment of Dementia Paralytica by Diathermy

EPSTEIN, SOLOMON AND KOPP (*Journ. Amer. Med. Associ.*, May 2, 1936, page 1527) review the results of hyperpyrexia treatment of dementia paralytica as reported in the literature and report the results of 33 cases treated by them by diathermy. Of these 33 cases eight patients improved and were working, seven improved but not self-supporting, four though improved are still in the hospital, four did not improve, ten had died and one of the series had a relapse, clinical and serological, four years after the treatment. With the clinical improvement there is a concomitant improvement in the reaction of the spinal fluid, 50% of the clinically improved cases having normal or nearly normal spinal fluid. 27% of the cases dealt with diathermy died within 2 years after treatment in contrast to 14·8% in malaria-treated cases and 13·5% in tryparsamide treated cases. Comparative study of the clinical results reveals 45% improvement in malaria series, 42 in tryparasamide and 27% in diathermy series and comparative serological study shows inprovement in the spinal fluid reaction of 22% in diathermy and 37% in malaria and tryparsamide treated cases.

Results of Roentgen Treatment of Gliomas

SACHS AND HIS ASSOCIAT. (*Archives of Neurology and Psychiatry*, March, 1936, page 597) report on

the study of the results of roentgen irradiation in 119 gliomas and give the summary of their observations in the following lines:- "Larger doses of roentgen radiation should be used in the treatment of tumors of the brain. This can be accomplished by (1) using multiple ports of entry instead of two or three, as has been done in the past (in that way it will be possible to deliver a greater total dose to the bed of the tumor), (2) employing fractionated exposures over prolonged time, (3) raising the percentage depth dose either by increasing the target-skin distance or by using heavier filters or by a combination of the two methods, and (4) devising a safe method of giving therapy into an open cranial wound thus avoiding the danger to the scalp and flap of bone and delivering a much larger quantity of roentgen radiation into the bed of the tumor." (Abstr. *Jour. Amer. Med. Asson.*, May 30, 1936, page 1949).

Radiotherapy in Hyperthyroidism

GALLY AND LEVY (*Journ. Amer. Med. Associ.*, May 2, 1936, page 1581) observe in a paper read before the Societe medical des hopitaux, that radiotherapy produces excellent results in hyperthyroidism and report that pigmentation never occurs if the technique is correct, that the scar tissue is a sequel of the disease and not of the radiotherapy and that with the method employed by them a much more rapid treatment can be obtained. They use an apparatus capable of delivering 200,000 volts, a thick filter and a large field with 50 cm. distance of the tube from the skin. The initial dose used by them is 3,000 roentgens and this is raised to 4,000 or 6,000 roentgens in severe cases. The total dose is from 10,000 to 12,000 roentgens followed by a rest of from 4 to 6 weeks before another series is started. They treated 172 cases in the past 10 years with very good results. Of these 76 were mild cases with increased B. M. R. from 20 to 30%, 53 were moderately severe from 30 to 50% and 25 were very severe cases, from 50 to 70%. The first group of cases were all cured with doses between 3,000 to 6,000 roentgens. The second group of cases were treated with doses of from 6,000 to 10,000 roentgens and 40 of them improved, 3 were operated and had irradiation 3 months after operation. In the 3rd group 2 cases were operated and there was marked improvement after post-operative irradiation. The authors conclude that this marked improvement noted was due to the high doses used and they noted no ill-effects by its use.

PHYSIOLOGY, NUTRITION AND BIOCHEMISTRY

Chlorophyll and Haemoglobin Regeneration After Haemorrhage

HUGHES AND LATNER (*Journ. of Physiology*, Vol. 86. No. 4. May 4, 1936) observe that chlorophyll administered after secondary anaemia varies in its effects in the following ways. (a) pure chlorophyll by mouth in large doses has no effect but chlorophyll freed from magnesium shows effect; (b) pure chlorophyll in very small doses per mouth markedly effect the speed of haemoglobin regeneration; (c) crude chlorophyll per mouth is also effective even in large doses; (d) quantity of chlorophyll in very small doses brings about a regeneration of haemoglobin far in excess of the quantity of chlorophyll actually administered. The authors incline to the view that chlorophyll or some of its bacterial decomposition products stimulates bone marrow activity. Chlorophyll also acts by facilitating more iron assimilation (Minot). The deleterious effect of large doses may be due to increased absorption of magnesium, which is toxic to bone marrow.

Maintenance of Pregnancy in Hypophysectomised Rabbits with Progestin

ROBSON (*Journ. of Physiology*, Vol. 86, No. 4, May 4, 1936) reports that rabbits were hypophysectomised between the 22nd—24th days of pregnancy, and injected with corpus luteum hormone for 3—4 days and in some of these animals the pregnancy was maintained till full term and normal parturition ensued though some foetuses were dead. At parturition the uterus acted to oxytocin *in vivo* and *in vitro* in a normal manner; the corpora luteae were normal but fewer and smaller; the mammary glands showed little or no development and there was no milk production.

Response to Drugs of Gut Muscle in Asphyxia and in Iodo-Acetic Acid Poisoning

PRASAD (*Journ. of Physiology*, Vol. 86, No. 4, May 4. 1936,) observes that mammalian gut muscle driven by rhythmical electrical stimulation and arrested under asphyxia can still contract in response

to Acetyl Choline. Adrenalin has powerful inhibitory action on activity of gut muscle asphyxiated in response to glucose. Gut muscle, poisoned with Iodo-acetic acid responds in normal manner to Adrenalin and Acetyl Choline.

Liberation of Histamine by Heart Muscle

ANREP, BARSOUM AND TALAAT (*Journ. of Physiology*, Vol. 86. No. 4, May 4, 1936) observe that cardiac muscle continuously produces a histamine like substance and the production of such substance is increased when heart is made to work against high arterial tension and diminished when heart fails and changes in the cardiac rate and output have no effect on histamine production. Administration of adrenalin increases production of histamine by heart which is also observed during anoxaemia and CO_2 poisoning. The author suggests that adrenalin may effect coronary dilatation through liberation of histamine.

Ergosterol, Parathyroid Extract and Blood Calcium

FREEMAN (*Amer. Journ. of Physiology*, Vol. 135, No. 3. May 1936) observes that there is uniformity in the rate of removal of injected calcium chloride in dogs, 60% being removed within one hour and a trace only persisting after 4 hours. Parathyroid injection or irradiated ergosterol, which produce a fasting hypercalcaemia also cause a decreased rate of removal of calcium from blood. The author suggests that this points to the fact that a part of hypercalcaemia due to parathyroid or vitamin D is caused by their influencing a decreased rate of calcium removal from the blood.

Action of Nitrogen Bases of Gastric Juice

KOMAROV (*Amer. Journ. of Physiology*, Vol. 115, No. 3, May, 1936,) observes that (a) histidine fraction has no action on blood pressure, secretion of the pancreas and bile, (b) arginine fraction has a histamine like action on blood pressure and pancreatic secretion but is without effect on bile secretion; (c) lysin fraction has marked pressor effect and stimulates secretion of pancreatic juice and bile; (d) none of these effects are influenced by section of vagi or atropine.

Dietary Requirements in Pregnancy and Lactation

GARRY AND STIVEN (*Nutrition Abstracts & Reviews* April, 1936, pages 855-882) review the recent work on dietary requirements in pregnancy and lactation and in particular the results of nutritional experiments on animals and give in the table given below the assessment of the daily requirements of the various food stuffs.

The authors observe that "any investigation into the causes of maternal morbidity and mortality should take into account the diet of mothers" but the perusal of the table will show that most of the mothers seldom get such a diet. The authors suggest that a mixed diet of natural food stuffs gives the best results and conclude by noting that "the most obvious need is for further investigation to show to what extent the gulf between the ideal and the real is reflected in the condition of women and children"

	Standard Requirement for Women.	In Pregnancy	Percentage Increase over Standard	In Lactation	Percentage Increase over Standard
Calories —	2100 + 300 for work	2500 + 300 for work	18	2700 – 3200 + 300 for work	25—50
		At term 2400 + 300 for work	14		
Protein —	64 g.	70-119 g.	10—86	84—104 g.	30—63
Fat —	80 g.	100 g. or more	12·5 or more	Over 100 g.	Over 12·5
Calcium —	0·68 g.	1-2 g.	50—200	1—2 g.	50—200
Phosphorus —	1·23 g.	up to 2 g.	upto 60	upto 2 g.	upto 60
Iron —	11·5 mg.	18 mg	60	12·5—15·5 mg.	9—35

RURAL HYGIENE IN FAR EAST

LEAGUE COMMITTEE ON INTERNATIONAL HEALTH PROBLEMS

The League of Nations Health Committee held its twenty-third session at Geneva from Monday, April 27th, to Saturday, May 2nd. It welcomed its two new members—namely, Professor A. Sordelli, the Director of the Bacteriological Institute of the National Health Department of the Argentine Republic, and Dr. B. Sbarsky, Professor in the Faculty of Medicine and Director of the Central Institute of Nutrition, Moscow.

The Committee noted with satisfaction that the Council had approved of its Bureau's accepting an invitation from the People's Health Commissariat of the Union of Soviet Socialist Republic to hold the next meeting of the Bureau of the Health Committee at Moscow. The date for the Moscow session of the Bureau was fixed for June 15th.

The Committee then reviewed the various activities of the Health Organisation.

Housing

The Committee discussed the progress of its international enquiry into housing. The object of this enquiry is to bring together all the available information as to the ways in which public health problems connected with housing are being dealt with in different countries and the results obtained, with a view to establishing certain common standards on a scientific basis. This involves a wide range of subjects, all turning on the giving of the maximum human comfort and health for the minimum of expenditure in housing plans and the building of houses. Among the matters for study of building materials from the point of view of hygiene; the hygiene of heating and cooling, of ventilation, insolation and normal and artificial lighting; the hygiene of city planning, such as methods and standards for determining the density of population in cities, the lay-out of open spaces, parks and play-grounds, methods for reducing the smoke nuisance, air pollution and noise; types of urban and rural dwellings and achievements of town re-development planning from the point of view of their success in conforming with the requirements of hygiene; housing standards and regulations and housing inspection; the exchange of information on existing legislation. administration and organisation, etc.

Scientific Research

In the United States of America, France, the Netherlands, Poland, Spain, Sweden and the Soviet Union, national commissions have been appointed to act as organs of study and co-ordination. In the United Kingdom, Professor Jameson convened on February 27th a meeting of representatives of the various British institutions concerned. The question of the organisation of a centre for the exchange of experts on scientific and technical research and the industrial groups is at present being studied. In the Netherlands, a national committee was set up by the Central Institution for Applied Scientific Research, while the Technical Health Section of the Royal Institute of Engineers forms a special committee to study questions relating to the hygiene of building. The Polish commission met on February 7th and 25th, 1936. It appointed a number of rapporteurs to examine principal questions of the plan of study and to summarise the work already accomplished in Poland, the standards, rules and methods in force, and their advantages and disadvantages. The French Commision, set up by Professor Parisot, met on March 6th, and the Spanish commission met on the same date under the chairmanship of Professor Pittaluga.

In addition to studying and reporting upon the various subjects enumerated, these national committees will be expected to ascertain what institutions, laboratories and other technical organisations in their respective countries are interested in the problems in question, to promote co-operation between all such bodies and to report to the Housing Committee of the Health Organisation both on what is being done in their countries and what subjects might be suitable for comparative studies on an international basis.

The Health Committee noted with satisfaction that the setting in motion of these preliminary inquiries had already done a good deal to bring together the various national authorities and bodies concerned with this subject within each country, and that there was every prospect of this investigation resulting in a body of principles and practical suggestions for their application, based on the experience of many countries, that would be of considerable value to national administrations and local authorities concerned with the public health aspects of housing.

Rural Hygiene in the Far East

The Committee heard with satisfaction that the Netherlands Indies authorities would welcome the holding of the Conference on Rural Hygiene in the Far East in Java, and that the Netherlands Government had intimated that it would be glad to have this Conference held in the Netherlands Indies. A Netherlands Public Health Officer had been appointed to join the Preparatory Committee for this Conference on its arrival at Batavia. The Preparatory Committee consisted of Mr. A. S. Haynes (Chairman), who is a former Colonial Secretary of the Malay States; Professor C. D. de Langen, Honorary Dean of the Faculty of Medicine of Batavia, Assistant Professor of Clinical Medicine of the University of Utrecht and Dr. E. J. Pampana, of the Health Section of the League Secretariat. The Committee sailed for Bombay on March 27th, for a tour of about five months in India, Burma, the Malay States, the Netherlands Indies, the Philippines, French Indo-China, Siam and Ceylon. The visit has been made by arrangement with the authorities of these countries and the Preparatory Committee will get into touch with the various health administrations in order to ascertain on the spot what are the problems of rural hygiene to which they attach the greatest importance and with which the Conference could usefully deal. The final agenda of the Conference and the documentary material at its disposal will be settled in the light of this preparatory study. The Preparatory Committee will call the attention of the authorities of the countries visited to the fact that at the European Conference on Rural Hygiene in 1931 the delegations consisted of administrators and health officials, together with engineers and experts with special knowledge of economic and social questions affecting rural hygiene. It is hoped that similar delegations will be appointed for the Far Eastern Conference on Rural Hygiene and that there will also be experts on such questions as education, the co-operative movement, rural reconstruction, and, last, but not least, nutrition. It will be recalled that the League Mixed Committee on Nutrition, which met in February, laid particular stress on the importance of the problem of nutrition in the Far East and asked that this question should be placed on the agenda of the Rural Hygiene as well as on that of the forthcoming Congress of the Far Eastern Association of Tropical Medicine. It is expected indeed that this will be among the chief items of the Rural Hygiene Conference's agenda. The Preparatory Committee of the Conference is being assisted by the Far Eastern Bureau of the Health Organisation at Singapore. The Advisory Council of this Bureau is circulating a questionnaire to the Far Eastern Health Administrations with which it is in touch for the purpose of collecting material on the main problems of rural hygiene existing in the Far East.

The International Institute of Agriculture and the International Labour Office are participating in the preparatory work for the Conference and will be represented at the Rural Hygiene Conference in the Far East.

Malaria Commission

The Malaria Commission of the League Health Organisation is holding its annual international malaria course at Singapore between April, 27th and May, 30th. It will be followed by practical courses, which this year will not be confined to Malaya and the Netherlands Indies, as in 1934 and 1935, but will also extend to French Indo-China.

Eighteen entries have so far been received, from the following countries:—Australia, Ceylon, China, India, Netherlands Indies, Indo-China, Malaya, Portuguese East Africa and Siam.

Nine scholarships have so far been awarded—four "all-in" scholarships (Austria, Ceylon, Malaya and Siam) and five partial scholarships, covering only the necessary facilities for attending the practical courses (China, India, Indo-China, and the Netherlands Indies).

A number of eminent authorities—Professor de Langen, Honorary Dean of the Faculty of Medicine

of Batavia; Major H. W. Mulligan, of the Malaria Survey of India, Dr. P. F. Russell, of the Rockefeller Foundation; and Professor J. Gordon Thomson, of the London School of Hygiene and Tropical Medicine—have kindly consented to deliver courses or single lecture.

Dr. Pampana, Secretary of the Malaria Commission, who has been stated, is a member of Preparatory Commission for the Conference of Rural Hygiene in the Far East, will be in Singapore during a considerable part of the course, and will also give lectures and act as the Commission's representative.

The Institute of Malariology in Rome, under the direction of Professor Bastianelli, has lately been inaugurated. In will organise a malaria course this year from July 1st to August 31st.

The Malaria Commission has also organised a number of research missions into various problems of malaria for malariologists, as well as continuing its co-ordinated researches into the comparative efficacy of synthetic anti-malarial drugs and into the varieties of malaria-carrying mosquitoes.

Singapore

The Health Committee considered the annual report of the Advisory Council of its Eastern Bureau. The report covers the manifold activities of the Advisory Council in connection with its epidemiological intelligence service for the Far East, the incidence of disease, the control of infected ships and pilgrims, the research work into plague, cholera, small pox, etc., the contact with health administrations. The Advisory Council, at its January session drew attention to the serious danger of yellow fever spreading to India as a result of the spreading-up of communications, especially by the growth of air traffic.

Collective Study Tours

The Health Committee noted that the recent study tour in the United States had been a great success and associated itself with the warm thanks expressed by the Council of the League to the United States Government. This tour lasted from November 4th to December 7th and was very carefully prepared by the United States public health authorities and the Health Section of the League Secretariat.

The programme of the tour was organised under the auspices of the United States Public Health Service and the participants were given every facility for studying the working of Federal State, county and municipal health services and the public health aspects of vast new enterprises such as the work of the Tennesse Valley Authority.

These study tours are a regular part of the League Health Organisation in establishing co-operation between National Health Administrations. They are held in every part of the world, either to study how one particular health problem is dealt with in a number of countries or the general working of one or two Health Administrations.

Miscellaneous

The Health Committee also discussed the report of its International Centre for the Study of Leprosy, whose headquarters are in Brazil; the working of its worldwide epidemiological intelligence service; the progress of the studies on nutrition it has undertaken in connection with the League's work on that subject; the matters it is being asked to investigate under the Opium Convention by the Opium Committee; the report on the enquiry into the results of the treatment of venereal disease; research into leishmaniasis, tuberculosis and other diseases; co-operation for unifying the pharmacopoeia; the report on the Pan-African Health Conference held last November; the report on the Inter-Governmental Conference for the Official Adoption of International Standards for Sera and Biological Products and the establishment of national centres to act as depositories of these standards (*e.g.*, antitoxins, sera, serological tests and remedies such as insulin). —(*Bombay Chronicle*, June 29, 1936).

MEDICAL NOTES AND NEWS

PUBLIC HEALTH IN THE LEGISLATURE

The discussion on the medical and public health portions of the Budget in the Bombay Legislative Council this year possessed several noteworthy features. It drew considerable attention and aroused considerable interest not only in the House but in the general public outside. The medical members of the House worked as a joint party, occupied the floor of the House for a fair amount of time and succeeded in making out a good case for a reorientation of Government policy. They were very ably supported in their arguments by the lay members interested in the subject. Several newspapers subsequently emphasised some of the points raised in the debate in their editorial columns.

The discussion on the Bombay Medical Council reiterated most of the points that we had raised in a recent issue. The ethical rules as regards consultation with medical men not registered and with those not registrable were criticised and it was urged from several quarters, that registration should be compulsory and that separate registers should be kept for those who practised the Ayurvedic and Unani systems. Attention was drawn to the use of degrees resembling medical degrees by men whose medical knowledge, if any, was acquired in a few months and who had never entered the portals of a hospital or a laboratory. Government reply on the question was very disappointing.

The rules published by the Secretary of State as regards the appointment of the Surgeon General, —taking away the power of appointment from the local government and ostensibly giving it to the Government of India but really to Service itself— received attention from several members. It was revealed that whilst these rules originated at the behest of the British Medical Association, the Government of India not only did not consult any of the medical associations in India but made such consultation by local governments impossible by labelling their correspondence "confidential." The minister in this reply revealed for the first time that the Bombay Government protested strongly against the change but had to give in to orders issued by the Secretary of State. Before the motion was withdrawn, the minister agreed to refer the question of raising a further protest on this issue to the Government of Bombay.

The question of differential treatment of Indian as compared to Anglo-Indian and European Nurses was raised especially in connection with the Sassoon Hospital, Poona, and a former minister (Sir Rafiuddin Ahmed) was heard to say "I regret a wicked system still prevails, namely, that of racial discrimination. At one time we knew that everything was in the hands of the Indian Medical Service. The department was governed for the benefit of that order."

A very interesting discussion took place on the question of charging one anna fee to patients in Hospitals and the minister's previous speeches, (before he became minister) were quoted against him. Sir Shah Nawaz nicely turned the point by saying that his accession to office had not changed his views but he had fuller knowledge now. A division was called and the motion to abolish the fees was negatived. 26 members (23 elected and 3 nominated) voted for the abolition, whilst 41 (18 official, 5 nominated, 14 Indian and 4 European elected) members voted against. So the fees still continue. It was noteworthy that one nominated member—a gentleman in Holy Orders—who spoke for the abolition of the fees voted against it.

The next important question raised was that of rural medical relief. It was pointed out that in rural areas there was one dispensary for every 315 square miles and for every five and a half lacs of population. Several schemes were suggested, such as opening more dispensaries, subsidising rural medical practitioners, the starting of Ayurvedic and Unani dispensaries, and increasing the honorary staff of mofussil hospitals. Dr. Collaco made the revelation that on the staff of the Bombay Municipality there were several medical men on a salary of Rs. 50 per month, and they were put in the same grade as motor drivers. Rao Saheb Kulkarni gave some instructive figures. The Government of Bombay out of a total revenue of nearly 15 crores gave only 40 lacs for medical relief. Out of these

40 lacs a handful of I. M. S. officers got over three and a half lacs. 90% of the expenditure was on establishment, so that really 10% was for proper medical relief. He pointed out that the towns got most of the money whilst medical relief in rural areas might be said to be suffering from "T. B." (tuberculosis). Mr. Pestanshah Vakil accused the Government of not even considering the concrete suggestions made by the members of the Council, especially the medical members, and asked what had been done to carry out the Leslie Wilson Scheme and also what was being done to open up the closed beds in Bombay Hospitals. He made a very good concrete suggestion that the Government should investigate into the prevalence of ankylostomiasis in the Charoter area of Gujerat asking for help if necessary from the Rockefeller Foundation. Mr. Sinclair Kennedy made a plea for a proper provision for mentally defective children.

Khan Bahadur Abdul Latif outlined what had been done by the Sholapur District Local Board. When he became President they had only two dispensaries and spent Rs. 8 to 10 thousand on them. They also spent another four or five thousand rupees on epidemics. He started 13 new dispensaries and was able to engage licentiates on a pay less than what the Government gave them. The villages provided the building and the furniture and the Board provided the doctor, the nurse and the drugs. The cost was thus reduced to less than two thousand rupees per dispensary. The scheme was working very well and Government officers who had visited the dispensaries were pleased with them. In one year they had treated 108,126 patients and 562 villages had been visited. During the plague season, 3, 482 persons were inoculated and in a cholera epidemic 126 villages had been visited and nearly 14,000 persons inoculated. The nurses attended on an average 10 maternity cases every month. He expressed his disappointment that the Government were very niggardly with their grant for this work. Dr. Alban D'Souza distinguished himself by criticising and questioning the statistics given by the medical members, Drs. Gilder and Collaco, and was taken to task in a humorous speech by Sir Rafiuddin Ahmed who spoke of him as "of all the faithless, faithful only he."

The Honourable Sir Shah Nawaz Bhutto, whose speech had to be cut short for want of time by a bell from the President, said that in Larkana he had tried out his scheme, which was less costly than what had been tried in Sholapur and just as efficient. The scheme was to give a private practitioner a subsidy of Rs. 25/- per month and the cost of drugs in order to make him settle in a rural area. He also favoured the scheme working at Satara, *viz.*, that of giving some instruction in the very rudiments of medicine to the village school-master and allowing him to render a sort of first aid to the villager. So far as Ayurvedic and Unani dispensaries were concerned the Government once had a scheme and decided to send 50 students for training to the Ayurvedic College at Benares. The Benares University, however, asked for Rs. 50/- per head per month. Government resources did not extend so far.

On the public health budget the question of village water supply was discussed and it was suggested that a list of villages where no wells existed should be made and a certain amount of money should be set apart for digging wells there. Attention was also drawn to the poor anti-malarial work done by the Government particularly in Kanara where in certain tracts every family was said to be suffering from it. It was pointed out that the agency for the distribution of quinine was insufficient and inefficient. The village patel was supposed to be one of the agencies for the free distribution of quinine but the village patels did not know where they could get quinine.

The discussion over the Haffkine Institute was interesting inasmuch as it showed a divergence of views among medical men. Dr. Collaco wanted the Institute to prepare and put on the market all sorts of sera and vaccines. Dr. Vad wanted it to be retained as a research institute. Dr. Gilder wanted the Government to define their exact policy and to supply plague vaccine in this Presidency free of charge. The Secretary to Government said that the Government was considering lowering the price of plague vaccine and he hoped that it might be possible in the future to supply the vaccine free of charge.

A good case was made out for the Government giving up its present position as advisers to Local Boards in times of epidemics, and creating national services for Epidemics , Fairs, Maternity and Child welfare, School and Industrial Hygiene controlled by the Government. A good many members of the different Local Boards took part in the debate,

which reached a high level and the defect of the present system, in which the Local Board is responsible for medical services whilst it has not got the money, came in for very severe strictures.

The appointment of part-time medical officers of health in mofussil areas was advocated, as also the formation of a permanent epidemic staff. The minister's reply though sympathetic emphasised the fact that the Government were doing all they could and would like to do more but for financial stringency. (*Bombay Medical Journal*, Vol. 5, No. 1, pp. 15-16).

RACIAL DISCRIMINATION AT HAMMERSMITH POST GRADUATE HOSPITAL

Recently two Indian students who had taken medical degrees (one M.R.C.P., the other F.R.C.S.) applied to the authorities at this hospital to be admitted to do the post graduate course. When their applications were rejected, they made representation to Dr. C. L. Katial, the deputy mayor of Finsbury and Borough Council's Health Committee. Dr. Katial has been a member of several Medical Associations in Great Britain. Until a few years ago he was a member of the British Medical Association, which is the strongest and biggest organisation of the medical profession. The organisation , which is important next to the British Medical Association is the National Union of County Officers. The three other organisations which carry on activities for and on behalf of the medical profession are the Medical Practitioners' Union, the Indian Medical Association and the Socialists' Medical Association. Fortunately, at the present moment, Dr. Katial is a member of all these four organisations.

On May 24 last, Col. Proctor, a retired I.M.S. Officer, addressed the members of the Socialist Medical Association, on the Post Graduate Medical School at Hammersmith, its history, development and the type of work done in the school. In the course of his speech Col. Proctor referred to the post graduate course and pointed out that 419 students were taking advantage of the facilities. Englishmen naturally topped the list of this number, which was followed by Indians, the next largest number. He said that there were 64 Indian students. Dr. Katial therefore asked the lecturer if it was a fact that in view of what Col. Proctor had said in the course of his speech, the school had been started for the purposes of training doctors belonging to the Empire and whether India, a part of the Empire, was represented on its Governing Body. Col. Proctor assured Doctor Katial that the Secretary of State for India was representing India on the Governing Body and Indian students were eligible for training.

Following this, Dr. Katial asked Col. Proctor whether Indian students were debarred from the appointments of house physicians and house surgeons for gaining experience after taking British medical degrees, such as M.R.C.P. and F.R.C.S. To the surprise of his audience, Col. Proctor admitted that Indian students were not given these posts.

His reasons were that Indian students did not know how to behave themselves and therefore, the authorities had turned down the applications of Indian students. The Colonel, when pointed out by Dr. Katial that if a particular student did not behave himself the Governing Body had a remedy of dismissing that student, replied that that was possible, but the authorities had not felt to take that view. He then made special references to Mahomedan students, their attitude towards women, a matter to which Doctor Katial took strong exception. "You have no right to make generalisation," answered back Dr. Katial.

Following this there was a long argument between the Colonel and Dr. Katial, who had the support of other members of his Association. Col. Proctor eventually wanted evidently to get out of the nasty corner in which he had found himself. He told Dr. Katial, "But we have a Persian for this Course!" This made the audience laugh, since it was clear that the authorities had admitted a student who was not a British citizen and that there was no difference in the temperament of a Persian in comparison with an Indian Muslim. When the Colonel was ridiculed on this account he finally told his listeners that the decision not to admit Indians was the decision of the London County Council, of which Mr. Herbert Morrison is the leader.

In view of Col. Proctor's statement, Dr. Katial took the earliest opportunity of discussing the matter with the members of the National Union of County Officers. This is an old organisation. with a membership of over 15000. Dr. Wattstobin, a member of the Middlesex County Council, is its President and two Indians, including Dr. Katial, are on its

Executive. This organisation is influential as it acts, more or less, as a trade union of British doctors. At the meeting of the Executive Committee held on Thursday last, following a representation by Dr. Katial, several members deprecated the decision of the London County Council and the following resolution was passed unanimously.

'That this Association having had its attention drawn to the practice of debarring Indian doctors from resident appointments (for the purpose of extending experience in up-to-date methods in medicine to doctors all over the Empire) in the recently opened post-graduate Medical School at Hammersmith, places on record its strong disapproval of the introduction into tthe administration of the London County Council of such practice whereby discrimination is being exercised on the grounds of colour; that a copy of this resolution be forwarded to the Rt. Hon. Lord Snell, Chairman of the London County Council, to the Rt. Hon. Herbert Morrison, leader of the London County Council, and to Mr. Somerville Hastings, M.S., F.R.C.S. the chairman of the Hospitals and Medical Services Committee, deploring such practices, particularly at a moment when every effort is being made to engender unanimity and a better understanding amongst all races of the British Empire; and that they be requested to immediately issue such instructions as will remove bias and result in a cessation of such prejudicial discrimination."

The charge made by Col. Proctor that Indians are not capable of executive and responsible work is well answered by Dr. Katial himself, who as chairman of the Health Committee of the Finsbury Borough Council, is responsible for the establishment of a health centre in Finsbury, which will cost the Borough about £58000.

NUTRITION ADVISORY COMMITTEE I. R. F. A.

The Nutrition Advisory Committee whose opening meeting was addressed by His Excellency the Viceroy has concluded its deliberations after a three day sitting. The Committee's findings will now be placed before the governing body of the Indian Research Fund Association some time in August or September.

While the recommendations will not be made public until they are examined by the governing body it is gathered that among the subjects discussed were an analysis of Indian foodstuffs, animal experiment in connexion with food deficiency diseases, malnutrition, a cheap and balanced diet, the spectographic method of examining food values and field work.

It is claimed that enough data has been collected to determine the nutritive value of the diet of the people of India in the various territories. The experts have not at present formed any charts offering alternative diets which can be eaten by the common people, but they expect that the Public Health Departments in the provinces, will form their conclusions from the results forwarded to them.

From correspondence it seems that these departments and the general public are taking an increasing interest in the matter. Certain institutions, particularly jails, are being advised on the matter and are improving their dietary. The Army is also being kept informed.

One method of testing the experimental results is to enforce a certain diet on a selected institution like a boarding house of school children. Dr. Ackroyd's institute at Coonoor does this work.

Experiments have been started on what is called in America the "ACH Index" (namely, the measurement of the arm, chest and hip). This method may possibly prove of value to India but the "normal man" has not yet been fixed on for the purpose of these measurements. Hitherto food values of uncooked food have been tested but later on cooked food will also be tested.

About Rs. 90,000 will be spent in the current year on nutrition work in India.—*A.P.I.*

BENGAL GOVERNMENT'S 'NO' TO CALCUTTA UNIVERSITY

In response to a query from the Calcutta University, the Government of Bengal, it is learnt, have refused to appoint at present any committee to consider the question of unemployment in this province.

Some time ago, the United Provinces Government forwarded to the Calcutta University a copy of the Sapru Unemployment Committee Report with a request that the views of the Calcutta University on this problem might be communicated to them.

The Calcutta University in that connection made an inquiry of the Bengal Government if they proposed to appoint any committee to go into the question of unemployment—*U.P.*

UNIFORMITY IN PREMEDICAL STUDIES

The question of securing uniformity in the standards of premedical studies for the medical degrees of different Indian universities forms the subject matter of a letter addressed to the Secretary to the Inter-university Board by the Secretary, Indian Medical Council.

The letter states that the Indian Universities, at present, having required a preliminary standard of the Intermediate examination (Inter-Science, Inter-Arts or Intermediate) including Chemistry and Physics, take very different views of the further instruction in the Basic sciences which it is necessary to impart to their medical students, indicating very varying reliance on the standard already attained in the Intermediate examination. Lucknow and the Punjab Universities give no further instruction, the former has a purely competitive entrance examination, Bombay gives instruction in Organic Chemistry only for two terms. Patna gives a six months course in Botany and Zoology only. Madras and Andhra give a six months course in all the three basic subjects. Rangoon and Calcutta insist on a full year's study; the last named including Organic Chemistry, the other three teaching that subject in the first year of the Medical course.

The letter further suggests that it should be possible to arrange a syllabus in these subjects for the Inter-Science Medical group, so that there would be no need for further instruction in them, the examination to include a practical and oral test. One year would thus be saved and Organic and Physical Chemistry would remain in the medical course.

The Inter-University Board has invited the several Indian universities having medical faculties to consider whether it is not desirable to adopt the Intermediate examination in Science as the qualifying test for admission to medical degrees. The subject is now said to be engaging the attention of the Universities and the colleges affiliated to them. It would appear that the colleges find it difficult to have a separate group for medical students in the Intermediate in asmuch as a parallel course has to be run as the course and examination of the medical group would be higher than that intended for those who seek admission to degrees other than medical.

LADY TATA TRUST SCHOLARSHIPS

The Trustees of the Lady Tata Memorial Trust announce the awards of the following scholarships and grants for the year 1936-37:—

I. International Awards for research in diseases of the blood with special reference to Leukaemias.

(1) Dr. Charles Obedling of French Nationality. Professor Agrege of the Faculty of Medicine, Paris, and Director of the Department of Experimental Medicine in the Institute of Cancer, Paris.

To continue research in the Transmissible Leukaemias of hens and their relationship to the Sarcomas.

Under the direction of Professor G. Roussy, Professor of Pathology in the Faculty of Medicine, Paris. (Grant of £400—Fourth year's Award).

(2) Dr. Julius Engelbreth Holm of Danish Nationality, Scientific Assistant at the Finsen Institute, Copenhagen.

To continue research on virus of Hen Leukaemias together with Therapeutic investigations.

Under the direction of Professor Dr. Olud Thomson, Director of the Institute of General Pathology, University of Copenhagen (Grant of £400—Third year's Award).

(3) Dr. Lecy Willis of British Nationality, Lecturer in Chemical Pathology at the Royal Free Hospital and Research worker at the London School of Hygiene and Tropical Medicine, London.

To continue research in the Macrocytic nutritional anaemia of monkeys with reference to tropical macrocytic anaemia in men. Also to investigate regeneration of blood by yeast treatment and the chemical nature of haemopoietic fraction present in the Yeast.

Under the direction of Prof. W. W. C. Topley, Director, Department of Bacteriology and Prof. H. Raistric, Director, Department of Biochemistry at the London School of Hygiene and Tropical Medicine. (Grant of £400—Third Year's Award).

(4) Dr. Max Otto Kaslund-Jorgensen of Danish Nationality. Assistant in the University, Skin and Venereal Clinic at Copenhagen.

To continue the study of Leukaemia and on the cultivation of leukaemia cells and myelomata *in vitro*.

Under the direction of Dr. Albert Fisoher, Director of the Caribergfondets Biological Institute. (Grant of £300—Third Year's Award).

(5) Professor Eugene L. Opie of American Nationality Cornell University Medical College, New York.

To continue the work in progress upon the Leukaemia-like diseases of fowls and their relation to neoplasms, and to determine the nature of viruses producing leukaemias and associated neoplasms—lymphomatosis, myelomatosis, endothelioma, sarcomas, etc. (Grant of £400—Second year's Award).

(6) Dr. Phil Kari Hinsberg of German Nation lity, Director of the Department of Chemistry, Pathological Institute, Berlin.

To investigate the metabolism of fat, copper and gluthione in leukaemias.

Under Professor R. Rossle, Director, Charite Krankenhaus, Berlin University, Berlin. (Grant of £300—Second Year's Award).

(7) Professor J. Mclntosh of British Nationality and of the Middlesex Hospital, London.

To assist a combined clinical and pathological investigation of human leukaemias. (Grant of £200 —First Year's Award).

II. Indian Scholarships of the value of Rs. 150 per month each for scientific investigations having a bearing on the alleviation of human suffering:

(1) Mr. Madhab Chandra Nath, M.Sc., to continue the Chemical and Biological analysis of Proteins of Indian Foodstuffs.

Under the direction of Dr. K. P. Basu, D.Sc., Bio-Chemist, Dacca University. (Third Year's Award).

(2) Mr. Ramakanta Chakraborty, M. Sc., (Dacca).

To continue the investigation of nutritional problems of Indian foodstuffs with special reference to Vitamin C.

Under the direction of Professor H. Ghosh, Director, Indian Institute of Medical Research, Calcutta, (Second Year's Award).

(3) Mr. Nalin Bandhu Das, B.Sc., (Calcutta).

To continue the work on the Oxytocic hormone and on Oxidation-Reduction systems in the body.

Under the direction of Professor Szent-Gyorgyi at the Institute for Medical Chemistry in the University of Szeged, Hungary. (Second Year's Award).

(4) Mr. Tejendra Nath Ghosh, M. Sc., (Dacca). A.I.I.Sc.

To continue the research on the preparation of New Anti-malarials.

Under the direction of Dr. P. C. Guha, D. Sc., Professor, Department of Organic Chemistry, Indian Institute of Science, Bangalore. (Second Year's Award).

(5) Dr. Birendra Kumar Nandi, M. Sc., Ph. D., A.I.C.

To continue the work on synthesis of anti-malarials on the line of plasmochin and atebrin types.

Under the direction of Professor R. Robinson, D.Sc., F.R.S., at the Dyson Perrins Laboratory, Oxford University, Oxford. (Second Year's Award).

(6) Mr. Harbhajan Singh Mahal, M. Sc., Lahore.

To work on the Role of "Choline Esterase" in Physiology and Pathology and to continue the work on anthelmintics synthesis of substances and examination of Indian Plants having anthelmintic properties.

Under the direction of Dr. B. B. Dikshit, Department of Pharmacology, Haffkine Institute, Parel, Bombay, (Second Year's Award,—only for the first six months).

INDIAN SCIENCE CONGRESS

A circular has been issued by Dr. J. N. Mukherji, General Secretary of the Indian Science Congress, stating that papers submitted for reading at the next session of the Congress to be held in Hyderabad (Deccan), from January 2 to 8, 1937, can only be submitted by ordinary and full session members or through ordinary members of the Congress. Papers submitted by persons who do not belong to any of these categories of members will not be accepted. Papers for the Congress should be forwarded together with three copies of an abstract to the President of the Section concerned, not later than September 15, 1936. Abstracts are to be typewritten and must not exceed 200 words.

Dr. H. Hyder Ali Khan, Principal, Medical College, Osmania University, and Dr. Muzaffar-uddin Qureshi, Head of the Department of Chemistry,

Osmania University, Hyderabad, have been appointed local secretaries.

The following are the Sectional Presidents—Dr. S. Datta, Presidency College, Calcutta, President of the section of Mathematics and Physics; Prof. J. N. Ray, University Chemical Laboratories, Lahore, President of the section of Chemistry; Mr. W. D. West, Geological Survey of India, Calcutta, President of the section of Geology and Geography; Mr. H. G. Champion, Sylviculturist, Forest Research Institute, Dehra Dun, President of the section of Botany; Dr. G. S. Thapar, Lucknow University, President of the section of Zoology; Dewan Bahadur L. K. Ananta Krishna Aiyer, Malabar, President of the section of Anthropology; Rao Bahador B. Viswanath, Officiating Director of Imperial Institute of Agricultural Research, New Delhi, President of the section of Agriculture; Col. A. Olver, Animal Husbandry Expert, Imperial Council of Agricultural Research, New Delhi, President of the section of Medical and Veterinary Research; Major S. L. Bhatia, Dean of the Grant Medical College, Bombay, President of the section of Physiology, and Mr. K. C. Mukherji, Dacca University, President of the section of Psychology.—*A.P.I.*

LEAGUE COMMITTEE ON NUTRITION

The Mixed Committee on Nutrition which finished its second session on Saturday, June 6, in Geneva, adopted the following recommendations:—

The Mixed Committee, while recognising the importance of the economic aspects of the nutrition problem, the fuller treatment of which it desires to reserve for a later report, submits to the Assembly the following preliminiary recommendations, in the hope that if they are approved by the Assembly and accepted by Governments, they will make a real contribution to the improvement of nutrition.

In order to promote endeavours to secure an adequate provision for all their people of necessary and more especially of protective foods, the Mixed Committee suggests to the Assembly to recommend that Governments should:

1. Encourage and support in every possible way the scientific study of nutrition problems with a view to ascertaining the optimum nutrition for each country, due consideration being given to differences of national economic structure, of climate and of available sources of supply.

2. Take all appropriate measures to ensure that the latest information about nutrition is included in the teaching of medical students and that medical officers of health, district nurses, etc., have such information constantly brought to their notice.

3. Conduct a vigorous policy of education and propaganda for the instruction of the general public in this subject.

4. Support the Health Organisation of the League of Nations, not only in the work of its technical committees but also in its endeavours in the field of public health and preventive medicine to promote the application of modern nutritional science for the benefit of the different age and occupational groups of the population.

5. Facilitate and promote international co-operation in education and propaganda and in the exchange of information, and, in particular, encourage all appropriate international organisations to lend their help.

6. Consider what steps should be taken, whether at the public charge or otherwise, to meet the nutritional needs of the lower income sections of the community; and in particular the means by which they might ensure that adequate supply of food, especially safe milk, should be made available for expectant and nursing mothers, infants, children and adolescents.

7. Consider what further steps might be taken to meet otherwise in distress the nutritional needs of adults, unemployed or otherwise in distress.

8. With a view to giving the fullest possible effect to national propaganda and educational efforts for the improvement of popular nutrition:

Take all possible steps to make food supplies and especially protective foods, so far as possible, available at prices within the reach of all classes of the community, while at the same time safe-guarding the interests of the producers;

Take steps to improve and cheapen the marketing and distribution of foodstuffs in both industrial and rural districts and, with these objects in view:

Encourage collaboration between co-operative and other forms of producers' and consumers' organisations.

9. With a view to assuring purity of food and in the interest of public health, promote, so far as

possible, the international unification of the technical analysis and control of foodstuffs, and of the control of preparations sold primarily for their vitamin content on the basis of the work being conducted on standardisation of biological products:

10. Set up standards of reference and specifications for grading foods of all kinds according to quality.

11. Consider whether any modification of their general, economic and commercial policy is desirable in order to ensure adequate supplies of foodstuffs and, in particular, to assist the reorientation of agricultural production necessary to satisfy the requirements of sound nutrition.

12. Co-ordinate the work done by different authorities—which affects the nutrition of the people, and in the absence of a central authority, set up a special body for this purpose, in order to secure unity of policy and direction.

13. In order, *inter alia*, to ascertain how far existing national dietaries fall short of the new standards of nutrition, collect information on food consumption by families of different occupational groups at different income levels as well as in the distribution of the population by family income:

14. Consider to what extent and by what means their national statistics of the supply and consumption of individual foods might be improved.

15. Assist the International Institute of Agriculture in collecting information regarding supply, national consumption and prices of foodstuffs.

Furthermore, the Mixed Committee invites the Assembly to recommend the Governments concerned to give their full support to the health organisation in its enquiries into the wide-spread malnutrition which exists in the tropics and certain far eastern countries.

TRAFFIC IN DANGEROUS DRUGS

The International Conference for the suppression of illicit traffic in dangerous drugs, convoked for the purpose of concluding a Convention with a view to co-ordination, on an international basis, the efforts of individual countries to suppress the illicit traffic, opened its sessions in Geneva in June last. States including non-members of the League such as, Brazil, Egypt, Japan and United States of America attended this Conference.

The main features of the draft convention are as follows:—

(1) the acceptance by Governments of an international undertaking to provide severe penalties, including imprisonment or other forms of deprivation of liberty, for the most important and serious offences in connection with the illicit traffic;

(2) provision of possibilities of granting extradition from one country to another of persons who have committed serious drug offences;

(3) the creation in each country of a central office for the supervision and co-ordination of the measures taken for the suppression of the illicit traffic;

(4) provision for close collaboration between the central offices in the various countries.

MENTAL NURSING EXAMINATION

For the first time, examinations were held in India for proficiency in mental nursing by the Royal Medico-Psychological Association at the Ranchi European Mental Hospital. Eight candidates appeared for the final examination, and the results, just announced by the Registrar of the Royal Medico-Psychological Association, show that cent per cent were successful, three passing with distinction. All the three candidates who sat for the preliminary examination have also been successful.

The scheme of granting certificate has not only raised the standard of nursing in mental hospitals, but in Great Britain and Ireland it has established more securely the standing of mental nursing. The effect of careful training of nurses on the comfort and happiness of patients is astonishing.

The Ranchi European Mental Hospital was recognised as a training centre in 1927, and in 1935 the first candidate from Ranchi appeared for the examination at the Mandsley Hospital in London and obtained the certificate. There are two examinations for the certificate, a preliminary and final, and consist of two parts, written and practical. For the examinations held in India, the written papers will be "marked" in England, while the Association appoints a Board of Examiners, two of whom must

be Superintendents of mental hospitals and members of the Royal Medico-Psychological Association.

COONOOR PASTEUR INSTITUTE

It is understood that, at the meeting of the Central Committee of the Pasteur Institute, Coonoor, held on the 22nd June last, Colonel Newcomb, I.M.S. the Surgeon General, proposed that in view of the profits made by the Institute year by year, the committee should forego the annual Government grant to the institute of Rs. 3,500 from the current official year onwards. The proposition was unanimously accepted.

It is likely that this voluntary giving up of Government grant may naturally induce local bodies and Municipalities in the presidency to withhold their annual contributions to the Institute in which event the Institute will stand to lose several thousands of rupees year by year. It is said that the Institute has now a reserve fund of about Rs. 5 lakhs.

SALE OF SPURIOUS DRUGS

The question whether the Government of India should undertake legislation to prevent the sale and manufacture of spurious drugs is reported to be still under consideration. The position seems to be that following the resolution on the subject passed by the Council of State last year, Provincial Governments were circularised and time has been given for replies until the end of the present Simla session.

On the basis of the replies received from Provincial Governments, the Government of India will proceed to decide what action is possible. It seems to be feared that without definite public support in the provinces and also an undertaking from the Provincial Governments that they would create the necessary machinery to enforce the provisions of the Act, there is not much use of introducing central legislation prematurely.

As a first step, however, and as an incentive to the provinces, the Government of India have prepared tentative plans for establishing a Central Bio-Chemical Laboratory for testing drugs for which the Standing Finance Committee at the last meeting sanctioned funds. As soon as Col. Chopra returns to India, it is expected that the question of location of the Laboratory and the details of the scheme will be finally worked out.

WORKING OF CALCUTTA SCHEME FOR MEDICAL SUPERVISION OF SCHOOL CHILDREN

A Press note by the Government of Bengal says:—

The scheme for the medical supervision of school children in Government and Government aided schools in Calcutta has gradually become very popular with the students and the public has also begun to appreciate its value. As a result of repeated examinations carried on by the Medical Inspectors followed by the issue of reminder cards to the guardians and by the introduction of a students clinic, a distinct tendency towards diminution of defects amongst students in these schools is now noticeable. Lack of interest shown by the guardians for the health of their wards, social and economic conditions of many of the guardians, their ignorance and negligence of the main principles of hygienic rules, are some of the causes which are retarding a more rapid diminution of the defects.

5,160 boys in 30 Government and Government aided high and middle English schools were examined by three Medical Inspectors during the year 1934-35. 3,235 of these were cases of re-inspection and 1,905 were new entrants. 2,430 boys or 47 per cent were found defective as against 50 per cent of the previous year. Main defects are the disease of the eye, tooth, throat, digestive system and malnutrition.

Eye defects.—1,705 boys, or 30 per cent are suffering from defects of the eyes. Of them 1,430 are suffering from defective vision. The defect in vision is mainly due to improper manner of placing books, reading in dim or dazzling light and malnutrition. Glasses were prescribed for the boys though some of the students did not unfortunately care to take spectacles on first or even second year's notification. 73 poor boys were supplied with free spectacles.

Tooth.—570 cases or 11 per cent with dental defects were detected during the year of which 475 were due to caries. The bad habit amongst boys of not washing their teeth and mouth clean is the common cause of the defect.

Diseases of the throat.—1,203 boys or 23 per cent. suffer from the disease of the throat. 853 cases of

enlarged tonsils were detected this year as against 1, 280 in the previous year. The decrease is due to improved health condition of students and the care taken by guardians as a result of notification by the Medical Inspectors.

Diseases of the digestive system.—Many students were found to be suffering from habitual constipation. Food rich in protein diet with absence of fruits is probably the cause of the disease.

Malnutrition.—1,705 students or 30 per cent. were suffering from malnutrition, 630 cases being very marked. As this may bring on diseases of lungs and intestines, greater care should be taken by the guardians, as soon as they are notified, to remove this defect.

There is generally a strong apathy for physical exercise among elderly students. The popular notion that many of our boys are unfit for physical exercise is wrong, only 20 or 4 per cent of the boys were found to be unfit for such exercise. Students must take some form of physical exercise daily at home. The present system of compulsory physical exercise in the school twice a week to each boy is not sufficient. It can only teach him the main principles and train him in discipline. Guardians should pay great attention to the diet of their boys, which should be well balanced and contain sufficient protein and all the vitamins. Milk must be included in the dietary of children and at least ¼ seer, if not more, of milk should be taken by each boy daily.

Students Clinic.—The important feature of the scheme is the establishment of the Students' Clinic, which was opened this year, though on a modest scale. The curative measures proposed through the establishment of School Clinic have not, however, fully developed yet. Effort is being made to extend this scheme in the near future. The Clinic affords treatment for such defects of the students as of eye, tooth, tonsil, ear and nose besides general ailments of heart and lungs, etc. The attendance of students was not very satisfactory, the Clinic being situated in an out of the way place.

The scheme for the medical supervision of school children which was started in Government and Government aided schools only in Calcutta a few years ago has since been introduced in a large number of private schools also. The value of the school medical works as "Prevention Medicine" is immense and the scheme should be introduced in all private schools as well.

It may be recalled that the scheme was first started a few years ago as an experimental measure under the administrative control of the Local Self-Government Department (Public Health), Bengal, Since 1933 it is being carried on under the supervision of the Physical Director, Bengal, and the control of the work has been transferred to the Education Department.—United Press.

PHARMACY ACT FOR BOMBAY?

The Bombay Government are considering the advisability of framing a Pharmacy Act with a view to controlling the professions of druggists, pharmaceutists and compounders of Bombay. They recently appointed a committee with the Surgeon-General as President to frame a Pharmacy Act for the Presidency. It is expected that the committee's recommendations will be ready in three months.

The committee will consider registration and necessary training of druggists, pharmaceutists and compounders, licensing, registration of establishments wherein pharmaceutical products, including poisons are sold, formation of a Pharmaceutical Society for the Presidency and the inspection of chemists and druggists establishments.

Bombay opinion, however, feels that education and public opinion are as much necessary as legislation to ensure a pure drugs supply. Moreover, All-India legislation by the future Federal Government only can guarantee sale of pure drugs.

The committee appointed three sub-committees, one to examine the possibility of the formation of a Pharmaceutical Society, another to draft a Pharmacy Bill and the third to formulate a scheme for training compounders and pharmaceutists.

MASSEY SCHOLARSHIP TO PATNA 'VERSITY LECTURER

With the approval of His Excellency the Viceroy, the Sir Vincent Massey Scholarship for the year 1936-37 has been awarded to Mr. Roger C. Lacy, Lecturer of the Patna Medical College.

The scholarship is awarded annually by the Viceroy to a post graduate student for study in the University of Toronto (Canada).—*A.P.I.*

ASSOCIATION NOTES

CALCUTTA BRANCH

A Paper on "The possibilities of Serum Treatment in Small-Pox" was read by Dr. Santosh Kumar De, B.Sc.,M.B., in a Clinical meeting held on the 28th March last. The meeting was presided over by Dr. T. N. Majumdar, L.M.S., D.P.H., D.T.M., late Health Officer to the Corporation of Calcutta.

The full text of the paper is published elsewhere in this issue of the Journal.

Many members took part in the discussion that followed.

* * * *

Dr. S. L. Sarkar, M.Sc., M.B., congratulated Dr. S. De for his interesting paper, containing valuable original researches. He brought to his notice that there is a paper on the subject (in Lancet, 1903,i 947) by Thomson and Brownlee with the heading "Further observations on the treatment of small-pox by the serum of immunized heifer". The contents of this paper has been referred, in Practice of Medicine, edited by Frederick Tice, M.D., Vol.III 1932. (Page 206). According to these workers, as an enormous quantity of serum is required for successful treatment and the amount of serum obtainable is small, there is difficulty about making the treatment successful in practical field. However, Dr. De has tried to solve this difficulty by trying to find out the time when the serum acquires the greatest therapeutic value.

* * * *

Dr. H. N. Bakshi said:—I am glad to have this opportuntity of coming here and listening to the interesting paper read by Dr. De., this evening as I am very much interested in the subject being in direct charge of the Small-pox Ward in the Campbell Hospital, the only place where such cases are admitted for treatment in Calcutta.

From the observation on and successful treatment of only a few isolated patients suffering from the disease, however virulent the type may be, it is neither possible nor feasible to come to a definite conclusion as to the efficacy of the serum therapy in Small-pox. It requires a prolonged observation on a very large number of patients, especially of the most virulent type, such as haemorrhagic Small-pox, the death rate of which is so far almost 100% before one is in a position to give an opinion as to the efficacy of it in the treatment of the disease. The mild type of cases are cured with any or no treatment at all.

It must, however, be admitted that the report of Dr. De, is undoubtedly very interesting and encouraging. The serum should be given a fair trial as it has a great potential possibility before it and if successful, it will confer a great boon on the suffering humanity.

So far our treatment of the disease is very unsatisfactory and it will remain so, until a specific is discovered to kill the unknown virus or neutralize the toxin thereof in the body.

If Dr. De can supply me with a sufficient quantity of serum, I shall be in a position, with the kind permission of the Superintendent, to try it on a fairly large number of the most virulent types of cases, especially the haemorrhagic ones in our Hospital to determine its efficacy.

At present our treatment is mainly directed of the toxin as well as prevention of complications by administration and application of drugs as far as possible. This cannot be regarded as an ideal treatment, but in the absence of a better and more suitable and efficacious means of cure, we have no alternative but to carry on the prevailing method of treatment, however unsatisfactory it may be.

We have, however, tried various preparations such as Campolon, Liver extracts, haemostatic serum etc., without encouraging results.

Convalescent serum (serum of convalescent patients) has been tried in some cases without any very appreciable improvement or successful result, but, the failure may possibly be due to inadequate quantities used. Not more than 5 to 10 c.c. a day could be injected intravenously as sufficient amount of serum could not be obtained inspite of our best efforts. The convalescent patients could not be persuaded to give sufficient quantity of blood for the preparation of serum.

Dr. De should, therefore, be encouraged to carry on his research work on the subject as he has a very good opportunity to obtain serum probably in sufficient quantity from the calves at his disposal.

In conclusion, I would like to thank Dr. De for giving us the pleasure to meet and hear his interesting paper this evening.

* * * *

Dr. S. C. Seal, M.B. in course of his discussion said:—

1. Dr. De is to be congratulated for the revival of the work on smallpox antiserum. It is not at all a new thing; for, beginning with Raynaud (1877) many workers have shown that serum from an immune calf gave protection to another calf against subsequent vaccination and that the serum of an animal immune to vaccine contains substances which can set up immunity when transferred to other animals. It has also been shown previously on many occasions that serum of smallpox patients, and convalescents of vaccinated people possesses the same properties and has both prophylactic and curative powers, but none could set the thing into actual therapeutic basis. In this respect at least, Dr. De deserves all the encouragement.

2. It has been found by Dr. De that the sera of the immune calves bled between the 10th and 14th day after inoculation are more effective in either aborting or controlling the vaccinial eruptions than that of those bled between the 6th and 7th day after inoculation. Should it not be worth while to try the efficacy of the serum obtained by bleeding every week till at least up to the 6th week after the inoculation to find out the actual minimum period at which the sera of inoculated animals would contain the maximum amount of antibodies, as, there are many affections such as Diphtheria etc., in which it takes about 6 weeks to develop the maximum immunity after the prophylactic inoculation?

3. In the experiments carried out by Dr. De the amount of pulp recovered has been considered as the criterion for judging the effectiveness of the antiserum. This can perhaps be much more simplified and at the same time improved if the amount of antibody content is determined in vitro experiments, *e.g.*, by precipitation, flocculation and complement fixation tests which have been successfuly applied by many workers in the continent, namely, Sternberg, Tanaka, Gordon, Bargess and others in estimating the virulicidal power of the antiserum.

4. Dr. De thinks that the effective therapeutic dose of the serum for an adult person is about 150-200 cc. This seems to be very large one and is perhaps liable to give rise to serum reaction and a bad after-effect particularly on the kidneys after such a heavy dose of foreign protein. To avoid this I would like to see whether hyperimmunisation is possible so that the titre of the serum may be increased and whether the serum can be concentrated with proportional increase of the therapeutic value. In order to facilitate the above studies the nature and properties of the antivaccinial serum should first be determined. It is, therefore, to be found out whether it possesses the same properties as the antitoxic, or antibacterial serum and whether its antibody content can be measured by precipitation or flocculation test or by testing in the lower animals such as rabbits, guineapigs, mice etc. Lastly, attempts should also be made to immunise larger animals such as horse, ass etc., so that larger quantities of serum may be obtained to facilitate concentration as well as commercial distribution.

5. According to Dr. De 19 cases have been treated with his serum but only 4 cases have been reported, and no mention has been made about what happened with others. Out of these, in only 2 cases the history of primary vaccination is absent. It can, therefore, be assumed that others had primary vaccinations and that the recovery, if all had recovered which I think did'nt, may be partly due to the effect of the primary vaccination and partly to the other forms of treatment given simultaneously in the severe cases. Besides, in some of the cases the treatment was started late when, it is possible, the patient had already begun to accumulate antibodies within themselves in response to the acquired infection. So, to avoid these fallacies is it not worth while to carry out the experiments under some control such as, testing of the blood of the patients before the commencement of the serum treatment for the natural antibody response by the methods already mentioned? Thus the evidence adduced by Dr. De in support of the efficacy of his serum does not seem to me to be conclusive but doubtless evokes further experiments. He deserves much encouragement and I sincerely congratulate him for his well-justified attempt.

* * * *

Dr. L. M. Biswas, L.R.C.S. (Edin.), D.T.M. (Cantab.), D.P.H. (London), Health Officer to the Corporation of Calcutta, after thanking the members for their keen interest in the researches of Dr. De, proceeded to relate his personal experience about some of the cases treated with serum. The results were highly encouraging. In the earliest stages, the disease was completely aborted while in the vesicular and pustular stages, the course of the disease was definitely cut short. In a Mahomedan child suffering from haemorrhagic small-pox where the serum treatment was carried out under direct supervision of H. O. by a local doctor, H. O. said that the result was extremely gratifying. In response to the desire expressed by some of the members to grant Dr. De all facilities to carry on the research work, H. O. assured everyone present that he would do everything to see that the research was carried to the finish. H. O. gave a hint that in order to compare the quantities of serum obtained by hyper-immunisation and also by massive inoculation, further researches would be undertaken by the speaker (Dr. De) under his supervision. H. O. concluded by saying that he was optimistic that in the near future the discovery of a potent remedy for small-pox would be an accomplished fact.

BOMBAY BRANCH

1st Annual General Meeting of the Bombay Branch of the Indian Medical Association was held at 9 p.m. on Friday, the 3rd July 1936, at the rooms of the Bombay Medical Union.

Dr. Jivraj Mehta presided. The President moved a condolence resolution for the loss of Col. Bholanath & Dr. Ansari which was passed all standing.

Dr. Jivraj then explained in short the necessity of having in Bombay a Branch of the Indian Medical Association which was the only all India body. He said that though Bombay had a number of medical societies both for the medical profession in general as well as for specialist, a branch of an all India body was required to keep the city in touch with the All-India Medical problems. He further said that though the membership at present was small he expected an increase during the next year.

The Hon. Secretaries presented the Annual Report and the Statement of Accounts for the year 1935-36.

The following Executive Committee and office bearers were elected, for the year 1936-37.

President—Dr. Jivraj N. Mehta.

Vice-Presidents—Drs. K. K. Dadachandji and P. T. Patel.

Hon. Treasurer—Dr. K. K. Dadachandji.

Hon. Secretaries—Drs. Chamanlal Mehta and R. A. Desai.

Members of the Committee—Rao Bahadur Dr. J. P. Modi, Drs. N. A. Purandare, S. S. Rau, M. D. Joshi, S. V. Oak, K. S. Mhaskar, M. B. Thakore and U. B. Narayan Rao.

ANNUAL REPORT

(1ST. JUNE 1935 TO 31ST MAY 1936)

Since after the All India Medical Conference was held in Bombay, the work of the Bombay Branch became slack and by December 1934 it was in a moribund state and had practically ceased to exist.

At the Indian Medical Conference held at Delhi during the Christmas of 1934, the question of activating the Bombay Branch was discussed unofficially by Dr. K. S. Ray the Jt. General Secretary and some members of the Central Council with Drs. Jivraj Mehta, Chamanlal Mehta and Rai Bahadur J. P. Modi who attended the Conference. It was urged by the Joint General Secretary and those present that an attempt be made to reorganise the Bombay Branch. On return from the Conference an effort was accordingly made to see if the Branch could be reorganised properly but as it did not meet with any success, it was decided to start the Bombay Branch *de novo*.

To deliberate over the proposal, a meeting of the members of the Indian Medical Association in Bombay was held on the 6th May 1935, when Rai Bahadur J. P. Modi, one of the Joint. General Secretaries was kind enough to be present. As a result of the deliberations it was decided to start the Branch *de novo* and an Executive Committee of the following members was elected at the same meeting to take up the work:—

President—Dr. Jivraj Mehta.

Vice-Presidents—Drs. D. D. Sathaye and K. K. Dadachandji.

Hon. Treasurer—Dr. K. K. Dadachandji.

Jt. Hon. Secretaries—Drs. Chamanlal Mehta and F. N. Tarapore.

Members—Drs. G. V. Deshmukh, Erulkar, P. T. Patel, U. B. Narayan Rao, S. V. Oak, S. S. Rau, M. D. Joshi and M. B. Thakore.

As Dr. Tarapore had gone abroad Dr. N. J. Modi was elected as Jt. Hon. Secretary at the next meeting.

The present Bombay Branch was thus started entirely *de novo* and without undertaking any responsibilities or liabilities of the old Branch. The Central office was also informed accordingly.

During the year under report, most of the time was utilized in organising the Branch and enlisting members. Circulars were sent round and personal influence exerted. As a result, at the end of the year there were 34 members on the roll.

Besides the first meeting at which the new Bombay Branch was organised there were two meetings of the General Body. The Executive Committee met altogether thrice during the year.

Though the Bombay Branch was not able to be very active with the local work, it has played a very active important part in the working of the Indian Medical Association as a whole, and given good co-operation to the Central Council.

During the year, two Sub-Committees were appointed, One to frame the rules & regulations for the Bombay Branch and the other to consider the ways and means of relieving the unemployment among the medical profession. The report of the Sub-Committee are awaited.

The Government of India and the Provincial Governments prepared a scheme for sickness insurance for the industrial workers. The medical profession of India was neither consulted in the preparation of the scheme nor was the scheme circulated for their opinion. The Bombay Branch made representations to the Government of India and to the Bombay Government pointing them out the omission on their part and the necessity of consulting the medical profession in any such scheme as without their fullest co-operation no Health Insurance Scheme would work satisfactorily. We are glad to say that the Government have acknowledged the force of our representation and have issued instructions to seek the opinion of the Bombay Branch of the Indian Medical Association, the Bombay Medical Union and the Bombay Branch of the Br. M. Association on any scheme made for Sickness Insurance. We may add that while the Government proposals were to enquire to start Health Insurance for workers in certain industries only, we have recommended that the scheme when it fructifies should equally apply to agricultural workers.

We regret that the financial position of the Branch is not very rosy. The membership is yet so small that but for the extreme economy practised, there would not be enough funds to keep the Branch going.

We should like to place on record our thanks to Dr. P. T. Patel for so generously giving us the use of his rooms for the meetings of the Executive Committee and the General Body and for his hospitality.

CHAMANLAL MEHTA,
F. N. TARAPORE,
Jt. Hony. Secretaries.

CENTRAL COUNCIL

Proceedings of the XXXVII Meeting of the Central Council of the Indian Medical Association held at 67, Dharamtala Street, Calcutta on the 13th June, 1936.

Members present:

Sir Nilratan Sircar, Drs. J. N. Basu, T. N. Ghosh, A. K. Chakraberti, H. N. Ray, Capt. P. B. Mukherji, Drs. R. C. Sen, S. C. Sen Gupta, A. K. Sen, D. P. Ghosh, J. P. Chowdhury, B. K. Basu and K. S. Ray.

Dr. J. N. Basu was voted to the chair.

I. Before commencement of the business of the meeting the following resolutions moved from the chair were adopted, all members standing in silence for two minutes:

(a) The Central Council of the Indian Medical Association puts on record its deep sense of sorrow at the sudden and tragic death of Dr. M. A. Ansari, one of the Past Presidents of the Indian Medical Association and a distinguished member of the medical profession and conveys its heartfelt sympathy to Begum Ansari and to other members of the bereaved family.

(b) This meeting also records its deep sense of sorrow at the deaths of Dr. Sir Kedar Nath Das, Kt. and Dr. K. M. Nadkarni,

both eminent members of the medical profession and offers its heartfelt sympathy to the members of the bereaved families.

II. Proceedings of the last meeting were read and confirmed with the following alterations:—

In Minute 2, in the last sentence, add the word "to" between the words "Not" and "be" and substitute the words "Central Council" for "Conference".

III. Accounts for the period 1-2-36 to 31-5-36 were recorded. Resolved that a sum of Rs. 5,000/- be placed in Fixed Deposit Account with the Central Bank of India for one year in the name of the Journal of the Indian Medical Association. Resolved further that the sum of Rs. 2,676/7/6, being the balance of the Earthquake Relief Fund be placed in Fixed Deposit with the Central Bank of India for one year, in the name of the Indian Medical Association.

IV. Resolved that the formation of new branches at Dholpur, Muttra, Berhampore (Ganjam Dist.) and Hoshiarpur (Punjab) and affiliation of the Tanjore Medical Association, Travancore Medical Association and Madura Medical Association be recorded.

V. Read a letter No. 2058/36 dated the 11th May, 1936, from the Secretary, All-India Medical Licentiates Association regarding observance of the 20th September 1936, as an All-India Anti-Medical Council Day. After some discussion it was resolved that the branches of the Indian Medical Association should co-operate with the branches of the All-India Medical Licentiates Association by participating in meetings organized for the purpose.

VI. With regard to the suggestion of Dr. G. DaSilva for changing the dates of the XIII All-India Medical Conference, the Secretary intimated that he had already made a reference to Dr. R. A. Amesur, Secretary, Karachi Branch, regarding the proposed change in the dates of the next Conference. Resolved that further consideration of the matter be postponed pending suggestion from the Karachi Branch on the matter.

VII. The following rules regarding the procedure of submitting resolutions to the Annual All-India Medical Conference and the Annual General Meeting of the Association were approved by the Council:—

ANNUAL GENERAL MEETING

1. At the General Meeting of the Indian Medical Association the business shall be taken in the following order:

(a) The election, if necessary, of the Chairman.
(b) The election of the office-bearers, and other elections.
(c) Adoption of the Annual Report of the previous year.
(d) Adoption of the Audited Accounts of the previous year.
(e) Passing of the Budget.
(f) Any motion for any change in the order of business.
(g) Resolutions brought forward by the Central Council.
(h) Resolutions forwarded by Provincial Branches.
(i) Resolutions forwarded by members of the Association.

2. Except with the special permission of the President (Chairman in cases of emergency) no resolution shall be placed before the Annual General Meeting of the Association that has not been previously considered by the Central Council.

3. Resolutions sponsored by individual members shall (a) reach the Secretary, I. M. A. through the local or provincial branches (if any) of which he is a member.

(b) Individual members, however, shall have the right to send any resolution direct to the Secretary, I. M. A. provided a copy has been previously submitted to the local and the provincial branch.

4. Notice of resolutions to be moved at the Annual General Meeting shall reach the Secretary, I. M. A., not less than 45 clear days before the date fixed for the meeting.

5. The Secretary shall, not less than 30 days before the date of the meeting, issue with the notice of the Annual General Meeting a preliminary Agenda Paper showing the business to be brought before the meeting, the terms of all motions to be moved of which notice in writing has previously reached him and the names of the movers.

6. A member who wishes to move an amendment to any item included in the Agenda Paper shall give notice thereof to the Secretary not less than 15 clear days before the date fixed for the meeting.

7. The Secretary shall make available to all members attending the meeting a list of all amendments of which notice has been given under Rule (6).

8. A notice of a motion of amendment shall be invalid unless accompanied by a copy of such motion or amendment.

ANNUAL CONFERENCE

1. At the All-India Medical Conference the business shall be taken in the following order:

(a) Address by the Chairman of the Reception Committee.

(b) Address of the President of the Conference.

(c) Election of Subjects Committee and other elections, if any.

(d) Resolutions brought forward by the Subjects Committee.

(e) Other business.

2. All resolutions to be placed before the open session of the Conference shall be considered and approved by the Subjects Committee.

3. The Secretary of the Conference shall make available to all delegates attending the Conference a list of all resolutions to be placed before the Conference as approved by the Subjects Committee.

VIII. Resolved that the following alterations be made in the rules:

Substitute the following for the last clause of Rule 7 (b):

"Branch Associations are free to enrol members paying subscriptions according to denominations fixed by the Branch. But the Branch shall remit an annual subscription of Rs. 3/- per head with the application of every member or half-yearly subscription of Rs. 1/8/- per member, if they join the branch in the second half of the Association year *i.e.* after 31st March, to the Central Council direct or through the Provincial Office where a Provincial Branch exists.

The branch shall pay Rs. 3/- per head for every member in subsequent years. Every member of a branch shall be entitled to all the privileges of a member of the Indian Medical Association.

Resolved that, in view of letter No. 957 of 10-6-36 from the Joint Secretary, U. P. Branch the amendment of Rule 18 as suggested by the U. P. Branch be referred for consideration at a subsequent meeting.

IX. In regard to the appointment of a whole-time stenotypist clerk in conformity with the Resolution No. 12 of XXXIV meeting held at Nagpur, the Secretary reported that advertisements were issued in the 'Statesman' and 'Amrita Bazar Patrika,' in response to which 60 applications were received and that out of these 7 candidates were selected and called for interview. Mr. Hrishikesh Banerjee, who appeared to be the best among the lot, was appointed as a whole-time steno-typist clerk on trial for one month from the 3rd June, 1936.

Resolved that the action of the Secretary be approved.

X. The recent communication issued by the Secretary of State regarding the recruitment to the Indian Medical Service was discussed and the following resolution was passed:

The Central Council of the Indian Medical Association strongly condemns the facts that the Government of India have not seen their way to make the recruitment to the Indian Medical Service by open competitive examination in India as was recommended by the various All-India Medical Conferences and requests the Government to re-consider their decision to make the recruitment by nomination and by holding open competitive examination in India only for recruitment of the members of the Indian Medical Service.

U. P. PROVINCIAL BRANCH

Proceedings of the meeting of the Working Committee of the Indian Medical Association, U. P. Provincial Branch held on Sunday the 7th June, 1936 at 4-30 p.m. in the Town Hall, Meerut.

Members present:—

Dr. S. Haldar, (Muzaffarnagar)—Vice-president in chair.

Drs. R. C. Mitter, (Meerut); K. B. L. Verma, (Meerut); Bhupal Singh, Provincial Secretary; R. N. Bose, Provincial Joint Secretary and J. L. Caroli, (Meerut).

I. Proceedings of the last Working Committee meeting were read and confirmed.

II. Statement of accounts for April and May, 1936 were put up and passed.

III. Resolved that the formation of the Muttra, Dholpur, and Deoria branches be recorded.

IV. Read resolutions received from the following branches: Moradabad, Ballia, Benares, Jhansi, Khurja, Barreily, Agra, Cawnpore, Aligarh, Bulandshahr, Saharanpur, Muzaffarnagar, Meerut, and Allahabad, disagreeing with the views of the deputation which waited on the Hon'ble Minister and demanding entire rescinding of amended Poisons Rules so far as they affect the Qualified Medical Practitioners.

This Working Committee agrees with the views of the branches and is unable to understand how the delegation could say that they appeared on behalf of those qualified practitioners only who dispensed their own prescriptions and had no objection to the continuance of the present rules more or less on the present lines for such practitioners who dispensed prescriptions other than their own. The memorandum presented to the Hon'ble Minister was definite in the demand that all rules affecting the qualified medical practitioners should be rescinded entirely.

It is evident that the delegation was not able to put the case of the profession correctly.

(1) Resolved that the Government may be informed that the profession cannot agree to any restriction of their right to dispense medicines on other qualified practitioner's prescriptions, as this right is conceded to them in the Code of Medical Ethics and is not considered objectionable practice even for registered practitioners.

Code of Medical Ethics, clause (C), under "some objectionable practices".

> Keeping an open shop, that is, one for sale of medicines, medical or surgical applicances, etc., other than those prescribed by himself or by another registered practitioner.

(2) That this Working Committee reaffirms its demand as regards Poisons Rules that they should be entirely rescinded so far as they affect qualified practitioners whether registered or not, and requests the Government to the reasonable demand of the profession.

(3) That a copy of the above resolutions be sent to the Hon'ble Minister, the Secretary to the Government and to the party leaders and also to 'Pioneer,' 'Leader,' and 'Hindustan Times'.

Proposed by the chair and adopted unanimously.

V. Resignation of B. Jagmohan Prakash, clerk and appointment of B. Kripa Ram Gupta recorded.

VI. Letter from the Honorary Secretary, Allahabad Branch dated 11-5-36 inviting the 3rd U. P. Medical Conference was read.

Resolved that the invitation should be accepted and the thanks of the Working Committee be conveyed to the Allahabad Branch for the same.

Resolved that the consideration of fixing the dates and programme of business for the Conference be postponed and an emergent meeting be called for the purpose.

VII. Resolution No. 3 of Muttra Branch regarding Excise Commissioner's letter about Camphorodyne and Chlorodyne be postponed.

VIII. Resolved that this Committee does not agree with the Dacca Branch's proposal for contribution of certain percentage of Central Fund Contribution to various branches.

IX. Resolved that the Agra Branch be requested to send us a detailed proposal in this connexion (teaching of Medical Psychology in Agra School and Lucknow Medical College.)

With a vote of thanks to the Chair the meeting dispersed.

R. N. BOSE,
Hony. Provincial Jt. Secy.

S. HALDAR,
(Vice-President)
Chairman.

* * * *

Proceedings of the meeting of the Working Committee of the Indian Medical Association, U. P. Provincial Branch held on Tuesday, the 16th June, 1936 at the Garvie Medical Library rooms, Town Hall, Meerut.

Members present:—

Dr. R. C. Mitter, Meerut (Chairman).

Drs. Bhupal Singh, Provincial Secretary; K. B. L. Verma, Meerut and R. N. Bose, Provincial Joint Secretary.

I. The proceedings of the last Working Committee meeting was confirmed unanimously.

II. (1) Resolved that the Honorary Provincial Secretary be authorised to fix dates for the Conference sometime in October in consultation with the Allahabad Branch.

(2) Resolved that the following provisional programme of business for the 3rd Session of the U. P. Provincial Medical Conference to be held at Allahabad be adopted:

1ST DAY'S PROCEEDINGS

A. 12 noon to 2 p.m.—Opening of the Conference.
(1) Speech by the Chairman of the Reception Committee,
(2) Address by the President,
(3) Letters and Telegrams if any; Reading of:
(4) Election of the Subjects' Committee.
B. 2 p.m. to 3-30 p.m.—Scientific Section.
C. 3-30 p.m.—Meeting of the Provincial Council.
D. 5 p.m. to 7p.m.—Interval for Tea etc.
E. 7 p.m. to 8-30 p.m.—Meeting of the Subjects' Committee.
F. 8-30 p.m. to 10 p.m.—Interval for Dinner.
G. From 10 p.m.—Subjects' Committee.

2ND DAY'S PROCEEDINGS

A. 8 a.m. to 10 a.m.—Annual Meeting of the Indian Medical Association, U. P. Provincial Branch.
B. 10 a.m. to 12 noon.—Interval for lunch.
C. 12 noon to 2 p.m.—Scientific Section.
D. 2 p.m. to 5 p.m.—Open Session of the Conference.

III. Read a letter from the Secretary, Muttra Branch dated 11-6-36 with copy of letter No. 1384 IX—144 dated May 5, 1936 from the Excise Commissioner and I. G. of Regn. U. P. to all District Officers, U. P. along with Muttra resolution No. 3 dated 30-5-36.

Resolved that the Excise Commissioner be written to on the lines of the resolution of the Muttra Branch on the Subject, (a copy of G. O. No. 368/XIII-132 of July 23, 1931 be sent to Muttra Branch in support of their resolution).

IV. Read the copy of the correspondence regarding Lucas—Chand Behari Lal controversy at Aligarh and resolved that the Honorary Provincial Secretary be requested to make necessary correspondence in the matter.

With a vote of thanks to the Chair the meeting dispersed.

R. N. BOSE, *Hony. Provincial Jt. Secy.*
R. C. MITTER, *Chairman.*

THE TINNEVELLY DISTRICT MEDICAL ASSOCIATION

The Tinnevelly District Medical Association held its monthly meeting on Saturday the 27th June, 1936 at Papanasam (Ananda Vilas). Members numbering 43 including 2 lady doctors gathered from all parts of the District.

The meeting began at 10 a.m. under the Presidentship of Lt.-Col. T. S. Shastry, I.M.S. The Secretary read the minutes of the monthly meeting held at the Headquarters (Palamcottah) on 23rd May, 1936, which were passed. Then Dr. Rama Rao's Bill on College of Physicians and Surgeons was taken up. The following resolution was passed unanimously.

"The Tinnevelly District Medical Association considers that no useful purpose will be served by the institution of a College of Physicians and Surgeons."

The Draft Rules of the Tamil Districts' Medical Federation was read by the Secretary and after discussion the following resolution was passed unanimously.:

"The Tinnevelly District Medical Association approves of the ideas and supports the organising of the Tamil Districts' Medical Federation."

Insteresting case notes by Dr. P. Janardhana Rao, L.M. & S., on (1) Typhoid Fever complicated by cerebral and respiratory symptoms and aphasia, (2) Stab wound of chestwall with protrusion of omentum, (3) Early case of Leprosy with cracks and keratosis of tips of fingers and toes were read. Lt.-Col. T. S. Shastry, I.M.S. read notes on a case of Myxoedema. There was a lively discussion on these cases. Dr. K. Padmanabha Ayyar, L.M.P., of Tenkasi, read an interesting paper on Constipation. After discussion Lt.-Col. T. S. Shastry, I.M.S., summed up the salient and important features of all the cases.

There was a dinner party at 1 p.m. and enjoyable music at 3 p.m.

As usual a Health Exhibition was arranged. The exhibits consisted of posters relating to cholera, tuberculosis, malaria, small-pox etc. A lecture on tuberculosis was delivered in Tamil by Dr. N. Lakshmanan, L.M.P.

K. RAMA AYYAR,
Secretary and Treasurer.

MEDICAL ASSOCIATIONS, SOCIETIES, ETC.

Medical Associations, Societies, Unions, etc., are invited to make use of this section of the Journal.—EDITOR.

PHYSIOLOGICAL SOCIETY OF INDIA

ANNUAL REPORT 1934-35

It is more than year and a half that this Society was brought into existence at an inaugural meeting held at the Physiological Laboratory, Presidency College on the 13th July 1934. There were since then eleven general meetings of the Society, including a joint meeting of this Society and the Biochemical Society of Calcutta and a special general meeting on the 4th January 1935 under the auspices of the Indian Science Congress in which many distinguished gentlemen from outside Bengal were present.

The papers read in these meetings were altogether seventeen in number. They were:

1. An improved method of taking genesis of tetanus curves by Mr. N. M. Basu.
2. A comparison between the actions of Urea-stibamine and Neo-stibosan on frog's heart by Mr. N. M. Basu.
3. The functional significance of bronchial musculature in respiratory processes by Dr. B. B. Sirkar.
4. Bio-chemistry and therapeutics of cobra venom by Dr. R. Bhattacharji.
5. Glutathione content of tissues and muscular activity by Dr. S. M. Banerji
6. Some observations on the nervous aspects of the regulation of Cardio-vascular problems by Dr. J. C. Gupta.
7. Bio-chemistry of snake venom by Mr. A. C. Ray.
8. Pharmacology and therapeutics of snake venom by Dr. J. S. Chowan.
9. Carotene content of Indian food stuffs by Mr. D. N. Mullick.
10. Histological preparation of tissues by paraffin method by Dr. B. B. Sircar, Messrs S. C. Sen and G. N. Bera.
11. Experiments with per-oral Insulin and the hypo-glycaemic, oxidising and other properties of Tungstic and Molybdic acid compounds by Dr. H. N. Mookherjee.
12. The Vagus and Sympathetic tone on the Cardio-vascular system by Dr. J. C. Gupta.
13. Changes in blood during Epidemic Dropsy by Mr. S. N. Mukherji.
14. A new form of Oscillograph. by Dr. N. N. Das.
15. Physiology of Coronary circulation and its insufficiency leading to pathogenesis with demonstration of clinical cases by Dr. J. N. Maitra.
16. Discussion of carbohydrate metabolism and Diabetes by Dr. J. N. Dutt.
17. Some observations of anti-complementary reactions of serum and production of the same phenomenon in vitro by chemicals by Dr. N. J. Banerji.

The Society is extremely grateful to the authors of these papers for their hearty co-operation.

There were five meetings of the Executive Committee. Two of these were mainly devoted to the framing of the rules of the Society. At the third meeting, the question of the creation of a separate section for Physiology and Bio-chemistry of the Indian Science Congress was discussed at the instance of Mr. N. M. Basu and a sub-committee was formed to take immediate steps for the purpose. The fourth meeting was convened mainly for arranging the publication of papers read at the Society and a committee was formed to give reception to Sir U. N. Brahmachari at his being elected General President of the Indian Science Congress. At the fifth meeting the question of affiliation of the Society to the National Institute of Sciences was discussed.

Origin of the Society: It would not be out of place to trace the origin of the Society. This Society may be said to have grown out of the ashes of the Biological Society of the Presidency College, which was founded in 1909 and had a chequered career. It was felt that in order that this Society may thrive and do useful work, the activities of all ex-students of physiology and persons interested in physiology and Bio-chemistry require to be harnessed. In the mean time, having learnt in the session of the Indian Science Congress at Bombay that a Science Academy (the present National Institute of Sciences) would be established with sections in all branches of Science, excepting physiology and since papers on Physiology were not receiving proper attention in the Medical section of the Science Congress, it was decided that an agitation should be made for the creation of a separate section for Physiology in the Science Congress and accordingly

letters were addressed to professors of Physiology and Bio-chemistry and to all eminent medical men, interested in Physiology. Having received favourable replies, it was decided to revive the Physiological Society in its present form to further the cause of much neglected Physiology. A letter was accordingly drafted and sent out, in response to which the inaugural meeting was held on the 13th July 1934.

Work done: It is gratifying to note that the Society in addition to organising meetings as mentioned above, has succeeded in creating a separate section for Physiology in the Indian Science Congress. The Society has become affiliated to the National Institute of Sciences and is accordingly receiving its Proceedings.

The task ahead: The Society, in order that it may grow to be an All-India Association and thus justify its name, must not be content with an arrangement for the publication of the papers read in it in a journal of the University which may be published in some unknown future, but have a journal of its own, for otherwise, there would be no attraction for members from outside Bengal for the Society. Further a journal may bring by exchange, a large number of leading journals of the world, which would be of inestimable value to the Society. Realising this, strenuous efforts for the collection of funds for the publication of the journal were made but with little success.

Another important question that requires to be tackled by the Society is the pressing problem of Nutrition in Bengal. At a meeting of the Society a committee was formed to discuss this question. This committee met before the last Christmas vacation. It was realised that without a nutritional survey and a comprehensive analysis of various foods taken in Bengal, the question cannot be successfully tackled. The first problem can be solved to a considerable extent with the help of student members and students of the various institutions connected with the Society. The second problem can also be immediately taken up in right earnest by the various laboratories working in unison. A committee should therefore be immediately formed to explore the possibilities of solution of this question, without unnecessary delay. Two very pressing needs of the Society are a permanent office and a library. Unless more funds are available, there is no immediate prospect of these being satisfied.

The future: The future of the Society depends mainly if not solely, on the research activities of the members themselves and not on any embellishment thereof. Consequently, the Society should make every effort to encourage the workers financially and otherwise by making representations to the authorities concerned.

Finances: The only source of income of the Society is the membership fees. There are in all 74 members, 59 being ordinary members and 15 student members. The income and expenditure of the Society are given in the account sheet, which has been audited free by N. C. Chakraverty, to whom the Society is grateful.

HEALTH DEPARTMENT, DELHI MUNICIPALITY

Copy of Resolution No. 11 of the Sanitation Sub-committee, dated 29-5-36, confirmed at an ordinary meeting of Delhi Municipal Committee, on 8-6-36.

11—VITAL STATISTICS FOR APRIL 1936

The Vital Statistical statements (as directed by the Committee *vide* its resolution No. 18 of the Sanitation Sub-committee, dated 18-8-34 and confirmed at an ordinary meeting held on 30-8-34).

Births.

The total number of births during the month under review was 1157 as compared with 1051 in the corresponding months of the preceding year. The birth rate was 39·95 against 36·29.

Death.

The total number of deaths during the month under review was 667 as compared with 860 in the corresponding month of the preceding year. The death rate was 28·03 against 36·25.

Infantile Mortality.

The total number of deaths among infants under 1 year during the month under review was 224 as compared with 298 in the corresponding month of the preceding year. The infantile mortality rate was 193·60 against 283·54.

Deaths from Various Diseases.

A statement of deaths from certain important diseases is given below:

Diseases		1935		1936
Malarial fever	—	28	...	23
Measles	—	87	...	—
Small Pox	—	84	...	13
Typhoid fever	—	37	...	25
Diarrhoea	—	19	...	25
Inf. Diarrhoea	—	139	...	64
Asthma	—	31	...	25
Broncho Pneumonia		167	...	162
Untraceable	—	24	...	16

Resolved that the monthly statement be recorded.

DEORIA MEDICAL ASSOCIATION

The eighth ordinary meeting (monthly) of the Deoria Medical Association was held at Dr. Jagat Singh's residence, on the 7th June 1936, at 2 p.m. Dr. S. C. Acharya was in the chair.

In the beginning, the proceedings of the last meeting was read by Dr. B. B. Srivastava, the Secretary, and subsequently approved and confirmed by the members of the Association.

In view of the repeated requests made by Dr. Bhupal Singh, the Secretary, U. P. Provincial branch, it was unanimously resolved on the proposal of Dr. S. N. Mukherji, that "immediate effect shall be given to affiliate the Deoria Medical Association to the Indian Medical Association and that, henceforth, this Association shall be guided by the rules of that great organisation".

Thereafter Dr. Srivastava read an interesting paper on Ankylostomiasis, upon which, there was a lively discussion. Drs. Acharya, Mukherji, Badri Prasad and Pandit took prominent part in the discussion. After the termination of the functions, Dr. Jagat Singh was at home to the members of the association.

IIND ALL-INDIA OBSTETRIC AND GYNAECOLOGICAL CONGRESS

The IInd All-India Obstetric & Gynaecological Congress will be held in Bombay about the X'mas 1937.

The following are the subjects selected for the main discussions:

(a) Toxaemia of Pregnancy.

(b) Cancer of Cervix.

The exact time and programme will be notified in due course.

ANNUAL REPORTS

HOSPITALS IN BIHAR AND ORISSA
From the Triennial Report 1932-35

"Before the year 1932 medicine was given free of charge to every person attending at a dispensary personally or represented by friends and as this system did not touch the pocket of anybody, a large number of persons used to attend dispensaries for obtaining medicines for any and every disease, however trifling it might be. But in 1932 the rules regarding the supply of medicines from charitable dispensaries were revised, requiring all but the poor and really indigent either to subscribe to the dispensary or to pay for the medicine supplied to them at the rate of not more than one anna for each prescription at the local fund hospitals and dispensaries in rural areas and also at the municipal institutions where no suitable chemist shops were available. The effect of the enforcement of this revised system of issuing medicines from dispensaries was that many who could afford to get on without medicines for ordinary maladies, stopped attending dispensaries to avoid payment on that account. The ultimate result of this has been the gradual decrease in the number of outpatients. This new system of making a small charge for medicine generally half an anna, serves to keep away many who may attend unnecessarily. In actual practice very little money is realised on this account. As no fees are charged from in-patients, their number has increased steadily every year."

PUBLIC APATHY

"There has been very little change in the attitude of the public towards the support of the

medical institutions. Their co-operation as manifested by their subscriptions shows entire lack of interest. Although the promised support in the shape of monthly subscriptions is often generous, the managing committees find great difficulty in realizing those subscriptions. In most cases, they become heavily in arrears and have at last to be written off. Even the members of the managing committees are often found by the Inspecting Officers to be very irregular in paying their own subscriptions. Unless they show examples of regularity in this respect they cannot expect others to be regular in payment of their subscriptions. If all well-to-do people in rural areas come forward and pay some monthly subscriptions regularly to the hospitals and dispensaries in their localities, much improvement could be effected in those medical institutions.

Well-to-do Patients to Pay

"It was experienced in the previous triennium that the allopathic hospitals and dispensaries were rapidly gaining in popularity, but the financial difficulties created by the economic depression made it impossible during the present triennium for Government as well as the local bodies to maintain their existing limit of expenditure on medical relief. The managing committees which were expected to supplement the income from subscriptions raised locally failed to do so. The local bodies and the managing committees were therefore authorized to charge a fee of not more than one anna for each prescription from all except the really indigent patients. Some dispensaries have availed themselves of this means of increasing their income and it is hoped that this arrangement will serve to relieve to some extent the financial position of those institutions and also have an educative value. The Indian public has unfortunately grown accustomed to the idea that the maintenance of hospitals and dispensaries and medical relief are the duties of Government and there is consequently very little enthusiasm to contribute any thing for their assistance."

More Dispensaries

The number of hospitals and dispensaries in Bihar and Orissa, states the report, steadily increased during the triennium under review. It was 672 at the end of the previous triennium and increased to 675 in 1932 to 686 in 1933 and to 690 in 1934, the total increase being 18.

Tuberculosis Menace

With regard to tuberculosis the report states:—"The problem has become important and demands the earnest attention of Government. Until now little has been done in the province to tackle the problem of tuberculosis. It is essentially an economic disease dependent on the adequate feeding of the population and hygiene. It may be possible to improve the latter by education and efforts will shortly be made to open outdoor tuberculosis clinics where cases can be examined and treated, given advice and by the employment of visitors, to educate sufferers and their relations in avoidance of dissemination of infection by precautions in the home.

"Under the auspices of the Bihar and Orissa Branch of the Red Cross Society an Anti-Tuberculosis sub-committee was formed in March, 1932 with the Inspector-General of Civil Hospitals as Chairman, the Director of Public Health as Honorary Secretary and five others as members to consider the question of starting an anti-tuberculosis campaign in Bihar and Orissa. The sub-committee decided that the campaign should be undertaken in the province by intensive propaganda by means of pamphlets, lectures, magic lantern demonstrations and cinema films. The Honorary Secretary has arranged to prepare suitable pamphlets on the subject in the several vernaculars of the province and the cost of their printing has been met by the Red Cross Society. A large number of these pamphlets has been printed and sent to the local bodies and educational institutions in the province and also to officials and non-officials interested in the subject. This publication is intended to awaken the interest of the general public in the matter of prevention of this widely prevalent disease in this province. It deals with facts and figures as they exist in India in general and in Bihar and Orissa in particular. It is a useful compilation and should be in the hands of every public health worker."

After-cure Workshops

"Dr. D. V. Gnanamuthu, Superintendent of the Itki Sanatorium, who was deputed to attend the Anti-tuberculosis Fund Conference, held at Delhi in November, 1934, read at the conference a paper in which he pointed out that the treatment carried out at the Sanatorium was defective in that it did not take into account the ultimate need of the patient after his discharge and that the treatment

should not only aim at curing the disease but should also enable the handicapped to return to his occupation and earn his living. With this end in view he suggested the great desirability of establishing tuberculosis colonies and aftercure workshops as adjuncts to the Sanatorium establishments.

"The unusually large decrease in the medical budget during each year of the present triennium was mainly due to the all round retrenchment and curtailment in all kinds of expenditure necessitated by the general financial stringency in the province.

"For the upkeep of certain dispensaries and the expansion of medical relief in rural areas district boards were given by Government grants aggregating to Rs. 3,03,314 in 1932-33, Rs. 3,26,460 in 1933-34 and Rs. 3,24,012 in 1934-35.

"The sum provided in the budget under the head '32-Medical' was: (Previous triennium average, Rs. 29,98,768) 1932-33, Rs. 25,25,319, 1933-34, Rs. 26,24,970, 1934-35, Rs. 26,51,382. Owing to the financial stringency, no new improvements worth mention were made during the year 1932-33.

"The teaching of the diseases of the eye, ear, nose and throat has much improved with the addition of several new appliances and the efficiency of this department of the College should be enhanced by the chair for Opthalmology which has been created.

Radium Institute

"The Radium Institute has now completed the 13th year of its existence, the last seven years being in Patna. This is the only Institute of its kind in India and is becoming more and more popular every day. The Pasteur Institute at Patna and the antirabic centre at Cuttack continued to work satisfactorily during the triennium. The Itki Sanatorium which was established by Government for the treatment of pulmonary tuberculosis has completed the 6th year of its existence and has been working satisfactorily.

Nursing Arrangements

"As stated in the last triennial report most of the hospitals are without adequate nursing arrangement. In these Institutions, the so-called nursing is done to some extent by the ward attendants. It is only at some important hospitals at the headquarters of the district that some arrangement for the nursing of patients has been made possible by the employment of a limited number of nurses both Indian and Anglo-Indian, with some European nurses or sisters. The Provincial Committee of the Lady Dufferin Fund has been doing its best to help in the matter of medical aid to women with the small income at its disposal since on account of the purda system, a very large number of women find it difficult to attend general hospitals.

Red Cross Work

"The activities of the Red Cross Society were generally directed towards the provision of comforts for patients in military, civil and mission hospitals, provision of comforts from and medical supplies for sufferers of epidemics of cholera, small-pox etc. The Executive Committee of the Bihar and Orissa Branch of this Society, of which his Excellency the Governor is the President, gave many generous gifts to the hospitals and dispensaries in the province during the triennial period under review."

HOSPITALS ORGANIZATION IN BOMBAY

Surgeon-General's Triennial Report

The Director of Information, Bombay writes:—

"The Government hospital organisation in urban areas has functioned satisfactorily during the period under review, and a high standard of medical treatment has been maintained. Medical relief for rural areas, however, still remains an unsolved problem and, as pointed out in the last triennial report, is a defect in our medical organisation which requires mention and emphasis," says the Surgeon-General with the Government of Bombay in the Triennial Report on the Civil Hospitals and Dispensaries in the Bombay Presidency for the years 1932-34.

During the period under review progress has been made in several districts. In Sholapur 13 new dispensaries have been opened in buildings provided free of rent by villages, with a medical officer and a midwife attached to each and at a recurring cost of about Rs. 1,700 per annum each. In Larkana, three dispensaries have been opened each in charge of a qualified Medical Officer and it is proposed to open one such dispensary for every 10 miles. Each dispensary costs about Rs. 3,000 annually. Ten maternity homes have also been opened under the supervision of a lady doctor, who helps to train local dais. Quinine is sold at half price or distributed

free to poor villagers and a touring medical officer has also been appointed. The Satara Local Board has opened 50 Centres for rural medical relief, in charge of educated villagers with a supervising medical officer who is also responsible for epidemic duty and for medical inspection of school boys.

As the responsibility for the efficiency of rural medical relief rests with Government through the agency of Local Bodies, the following review of the methods by which the problem can be attacked or which have been employed elsewhere is mentioned in the Report.

Present System

In the Bombay Presidency, including Sind, a cadre of 18 Bombay Medical Service, Class II, and 249 Subordinate Medical Service Officers is maintained for the administration of 267 dispensaries excluding the 111 dispensaries, for which medical staff is recruited independently by the bodies concerned. Though the total number of individuals treated amounts to 25,90,627, there still remain very large areas in which medical aid is not available. The Medical Officers employed are Government servants for whose services district boards pay a fixed contribution equal to about 66 per cent. of the cost and supervision is exercised by the Civil Surgeon of the district. Management of the institutions rests with the local bodies, but the transfers, necessary with such a large cadre, are managed by the Surgeon-General, who consults local opinion whenever possible.

Expensive and Unsound

"Especially trained compounders school-masters or educated villagers are given a limited supply of drugs and dressings with which they can administer simple treatment or first aid. The method which is employed in several districts is cheap, but cannot be satisfactory, or a reasonable substitute for a qualified medical man," says the Surgeon-General. Referring to travelling dispensaries, the Surgeon-General points out that for the treatment of special diseases, *e.g.*, leprosy, eye diseases, etc., excellent work has been done but in general the scheme is expensive, and not sound unless the area to be served is a limited one. The same objection applies to the employment of travelling doctors. Magnificent work is, however, being done by Mission hospitals in many parts of the Presidency which would have suffered badly but for the unstinted aid which has always been given. Valuable work is also being done by the Red Cross Society in several districts.

Position Unchanged

The principle of appointing Advisory Committees was extended to 8 more civil hospitals in the mofussil. The position of Hospital Funds remained more or less unchanged and their use is restricted to expenditure on diets, medicines and instruments. The position as regards Hospital Nursing and Training is the same as stated in the last Triennial Report. After the close of the triennium the Midwives and Health Visitors' Act has been brought into operation.

Quarantine Rules

Important measures have been introduced in regard to Port Health administration such as revision of the Indian Pilgrim Ships Rules and the Port Quarantine Rules, formation of Port Sanitary Committees, etc. Pilgrims for the Haj must now be protected against cholera and small-pox and improved facilities both for waiting accommodation and direct embarkation after medical inspection have been provided. The introduction of Medical Inspection Cards for local passengers has greatly accelerated inspections and constitutes a check upon missing passengers.

Marked Decrease

The number of medical institutions actually at work on 31st December, 1934, was 533. The average number of in-patients treated during the triennium was 111,010 against 110,095 in the previous triennium, while out-patients on an average numbered 3,236,959 as compared with 3,802,983 in the previous triennium. The number of women patients was 759,556 as against 863,547. There is a marked decrease of 14·4 per cent. in the attendance of patients at the hospitals and dispensaries during the triennium over the former. There are two causes for this. During this triennium Aden was transferred to the Government of India and hence the statistics of patients from the Medical Institutions in Aden are not included in the report since 1932, and levy of one anna fee has reduced the number of out-door patients. The levy of two annas fees for in-door patients has, however, not affected the in-door attendance.